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ABSTRACT

Developments in college teaching, research, staff development in Australia during the 1980s are addressed in 38 papers from the 1983 conference of the Higher Education Research and Development Society of Australasia. Themes of the papers include: institutional change, staff perceptions of rewards, professional development, students and tertiary study, professional growth through innovative teaching, and applications of educational technology to teaching and learning. Titles and authors include the following: "Towards New Accountability Policies Pertaining to University Teaching" (J. M. Genn); "The Impact of Declining Promotion Opportunities" (Susan Payne); "Evaluation and Professional Development: The Probationary Period--A Case Study" (Ingrid Moses); "Curriculum Changes in a University Department: Review, Principles, Procedures and Outcomes" (B. W. Imrie & D. G. Pearson); "Implementing Curriculum Through a Democratic Process" (R. Laplanche); "The Impact of Higher Education: Graduates Report on What They Learnt" (J. P. Powell); "Essay Writing: Meaning as a Way to Language" (Hanne K. Bock); "A General Model of Undergraduate Teaching and Learning" (Peter John November); and "CAL in Technology: Directions for Future Development" (Geoffrey W. Smith). (SW)

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TERTIARY EDUCATION IN THE EIGHTIES: PATHS TO REWARD AND GROWTH

Edited by

INGRID MOSES

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HERDSA

Research and Development in Higher Education Volume 6

RESEARCH AND DEVELOPMENT IN HIGHER EDUCATION VOLUME 6

Selected papers presented at the ninth annual conference of the Higher Education Research and Development Society of Australasia, University of Queensland, Brisbane, 14-17 May, 1983.

TERTIARY EDUCATION IN THE EIGHTIES: PATHS TO REWARD AND GROWTH

Edited by

INGRID MOSES

Tertiary Education Institute
University of Queensland

Higher Education Research and Development Society of Australasia
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The general objective of the Society is to promote research and development in post-secondary education. Membership of the Society is open to any person interested in that objective.

Further information regarding membership of HERDSA is available from T.E.R.C., University of N.S.W., P.O. Box 1, Kensington, N.S.W. 2033, Australia.

CONTENTS

		Page
PREFACE		vi
ACKNOWLEDGEMENTS		vii
CHAPTER 1:	THE WIDER PERSPECTIVE	1
H.K. Coughlan	Tertiary Education in the Eighties - Some Implications for Research and Development	3
K.R. McKinnon	Tertiary Education in the 80's: Paths to Reward and Growth	11
B.G. Wilson	Evaluation in a University Environment	21
Gordon Jones	Special Experience Programs as Paths to Reward	27
CHAPTER 2:	INSTITUTIONAL CHANGE, INSTITUTIONAL PROVISIONS FOR REWARD AND GROWTH	33
Blair Stone & *R.A. Silverthorne*	Creating a Climate for Excellence in an Academic Environment	35
J.M. Gerns	Towards New Accountability Policies Pertaining to University Teaching	47
Susan Payne	The Impact of Declining Promotion Opportunities	61
B.W. Imrie	Promotion: A Case for Development	73
CHAPTER 3:	STAFF PERCEPTION OF INSTITUTIONAL OPPORTUNITIES FOR REWARD AND GROWTH	85
David Boud & *Elizabeth de Rome*	What Counts?: Academics' Perceptions of the Promotions System	87
M.H. Soliman, *H.M. Sungaila,* *R.G. Clark, &* *I.K. Soliman*	Staff Perceptions of Promotion Criteria	99
Michael S. Parer & *Stanley Croker*	Institutional Support and Research for Academic Staff Who Teach Students in External Studies (Distance Education)	113
Rosamond Nutting & *Delphine Rouessart*	Institutional Rewards and Personal Growth: Women in Educational Administration	121

		Page
CHAPTER 4:	EVALUATION AND PROFESSIONAL DEVELOPMENT	135
John Jones & Brad W. Imrie	Professional Development Policies for Academic Staff in Australia and New Zealand	137
John A. McIndoe	Making Appropriate Use of the Probationary Period: A Model for Academic Staff	147
Ingrid Moses	Evaluation and Professional Development: The Probationary Period - A Case Study	157
CHAPTER 5:	REVIEWS OF INSTITUTIONS, CURRICULA, TEACHING METHODS	171
John Clift & Leonie Black	Why Should I Evaluate?	173
B.W. Imrie & D.G. Pearson	Curriculum Changes in a University Department: Review, Principles, Procedures and Outcomes	181
M.T. Prosser	An Examination of the Process of Reviewing the Use of Television in a First Year Undergraduate Physics Course	191
CHAPTER 6:	COURSE DEVELOPMENT	201
Rosamond Nutting	Designing New Courses for the Under-Achiever	203
R. Laplanche	Implementing Curriculum Through a Democratic Process	211
S. Astill, R.F. Hubbard, M.T. Kelly, S. Kokot, D.S. Litster, & D.J. Unwin	Remedial Teaching in a Tertiary Institution	219
CHAPTER 7:	THE STUDENT IN TERTIARY STUDY	231
Anthony J. Dare & Rosalind E. Hurworth	Student Experience of First Year at RMIT	233
John A. Bowden & Leith Hancock	Living and Learning as a Mature-Age Student	241
P.D. Byde, P.G. Carpenter, & J.S. Western	Student Judgements of Professional Courses	251
J.P. Powell	The Impact of Higher Education: Graduates Report on What They Learnt	263

Page

CHAPTER 8: HELPING STUDENTS MEET THE DEMANDS OF TERTIARY STUDY 271

Hanne K. Bock Essay Writing: Meaning as a Way to Language 273

Peggy Nightingale Improving Students' Writing: A Case Study 285

Ruth Hubbard Tertiary Mathematics - Some Pressing Problems 297

Mavis Kelly & Margaret Shapcott Conscious Control of Learning Strategies 301

CHAPTER 9: PROFESSIONAL GROWTH THROUGH INNOVATIVE TEACHING 311

M. Sheehan, J.G.C. Munro, & J.G.P. Ryan An Innovative Approach to Student Placements Using Computer Facilities 313

Lorna Deacon Channon Rationalising a Multi-Strand Agenda: Death and the Medical Student 319

Richard Norris & Peter Cullen Individualized Learning in Tertiary Education 325

Peter John November A General Model of Undergraduate Teaching and Learning 337

J.P. Powell & L.W. Andresen Humour and Teaching 349

CHAPTER 10: APPLICATION OF EDUCATIONAL TECHNOLOGY TO TEACHING AND LEARNING 357

Anne L. Russell How Media Materials Are Used in University Instruction: Reports of Selected University Faculty 359

Geoffrey W. Smith CAL in Technology: Directions for Future Development 371

D.J. Yates A Case for Better Software in Biological Education 381

Roy Lundin Knowledge Networks Through Satellite Communications as a Basis for Continuing Education at a Distance 393

INSTITUTIONAL ADDRESS OF AUTHORS 403

PREFACE

This volume contains many papers first presented at the 1983 Annual National Conference of the Higher Education Research and Development Society of Australasia (HERDSA), held at St. John's College, University of Queensland, St. Lucia, 14-17 May 1983.

The formal part of the conference was organised in symposia, workshops, discussion groups and paper sessions. They served a useful function for crystallising ideas, for sharing research, approaches and practices in teaching, evaluation and staff development. It is hoped that the interaction between participants and the critical examination of presentations provided a means for the professional development of contributors and participants alike.

In recent years much criticism has been levelled against conference proceedings. The Executive Committee of HERDSA therefore decided that there would be no proceedings of the Ninth Annual Conference; instead only those papers would be selected for publication which adhered to the conference theme. The resulting volume should therefore have more thematic cohesion than previously. Yet, inevitably, some papers will appear less directly related than others. (It is a challenge to the reader to interpret their relevance in view of the conference theme.)

The conference was first advertised as follows:

> "Tertiary education in the eighties is under pressure caused by shrinking resources. But while the threats posed by current and future cutbacks cannot be ignored, the challenge is to turn them to advantage.
>
> The conference will take a positive and constructive approach, and will be concerned with professional growth and rewards (including promotion and special study or experience programmes); the contribution which research and development in higher education may make; the use of computers and other ways of improving the effectiveness of teaching and learning; and the design and implementation of reviews of performance, curricula and departments."

In the introduction to each chapter I have attempted to point to the connection with the theme.

Ingrid Moses
St. Lucia, September 1983

ACKNOWLEDGEMENTS

The conference from which this collection of papers arose was described by participants as a stimulating, rewarding, cohesive and well organised experience. I wish to pay public tribute therefore to the work and ideas of the other members of the conference committee, Geoff Foster (conference treasurer) and Ernest Roe of the Tertiary Education Institute, University of Queensland, Don Litster of the Queensland Institute of Technology, David Mitchell of the Queensland Technical and Further Education Division, and Ortrun Zuber-Skerritt of Griffith University.

Much of this volume is topical. I considered it therefore important to publish this book quickly. Participants had been asked to submit their papers camera-ready. Yet much editing and rewriting was necessary to achieve more than a random collection of papers.

The Director of the Tertiary Education Institute, Professor Ernest Roe, was elected President of HERDSA at the 1983 Conference. His commitment to the objectives of HERDSA is demonstrated by the resources he put at our disposal when organising the conference and for publishing this volume. This is greatly appreciated. Thus we had cheerful and competent help in the organisation of the conference and in the production of this volume. Janet Seddon who had typed much of the conference material and acted as conference secretary now retyped many manuscripts. Margaret Hastie assisted her and proofread all the papers for publication. Marjorie Searle had standardised the abstracts of the papers and now did most of the sub-editing work, for example, standardising spelling and references, spotting inconsistencies and proof-reading. On behalf of HERDSA and myself - many thanks for your help.

Ingrid Moses

CHAPTER 1

THE WIDER PERSPECTIVE

The first chapter contains the keynote addresses of the three invited speakers and a contribution to a panel session. The invited speakers addressed the conference theme broadly and directly. The Chairman of the Commonwealth Tertiary Education Commission (CTEC), Mr Keith Coughlan, was in a unique position to take the national perspective on research and development. He sets the scene for this volume by relating tertiary education to society's needs. One of the great concerns is the lack of willingness of bright young school leavers to avail themselves of educational opportunities which our systems offer. What can tertiary education institutions do to see that these talents are left dormant? After the public and institutional interest in mature age students in the seventies the focus is back on school leavers and, indeed, several investigations on entrance criteria are under way.

Dr Ken McKinnon, Vice-Chancellor of Wollongong University, was asked to address the conference theme by drawing on his own experiences in the educational service in New Guinea and as former Chairman of the Schools Commission. He came to Wollongong at a time of no-growth in the university sector after having participated elsewhere in the expansionary period in the sixties and early seventies. He stresses the necessity for openness and shared planning in higher education, and tackles the question of low morale in tertiary institutions. Even though there is no expansion in the higher education system he believes there is plenty of scope for individual growth and reward, through collegiality, through a greater sense of participation, through reviews which may lead to rewards and growth. Above all, however, personal growth and job satisfaction can be achieved, so he believes, through increased competence in the tertiary teacher's two main functions, teaching and research. And here he sees an important role for educational development units: assisting academics in achieving this competence. Part of a re-energising effort would also be to increase staff mobility through retirement, exchanges and study leave. In order to achieve a rewarding teaching and learning environment government planning has to be explicit and open, and within the institutions a sense of purpose, of creative leadership and confidence, is needed.

Many of these issues are addressed in later papers in this volume.

The third invited speaker was Professor Brian Wilson, Vice-Chancellor of the University of Queensland. Professor Wilson had been Chairman of the AVCC Working Party Report, Academic Staff Development (1981), probably the most referred to document in this book. He also introduced at this University an extended probationary period for new staff of five years and required annual reviews of the performance of staff on probation. Because of his interest in evaluation he was asked to give an account of evaluation in a university environment.

Mr Gordon Jones, Campus Principal of Kelvin Grove Campus, Brisbane College of Advanced Education was invited to speak in a panel session on one type of institutional provision for reward and growth: special experience programs in colleges. Though they serve professional growth of individuals the benefits to the institution are also being assessed. In universities special studies programs, sabbatical leave or study leave as these regular leaves are called at various institutions, are no longer a right which academics have. With more stringent monitoring of plans for such programs and of outcomes, the award of study leave, of leave for a special experience program, has become a reward. Thus the college expectations and experiences with special experience programs are of interest to all sectors of tertiary education.

TERTIARY EDUCATION IN THE 1980s - SOME IMPLICATIONS FOR RESEARCH AND DEVELOPMENT

H.K. COUGHLAN
CHAIRMAN
COMMONWEALTH TERTIARY EDUCATION COMMISSION

I have decided to talk about those likely developments during the next few years in tertiary education which appear to be significant for members of a Society devoted to the consideration of research and development in higher education. I note that while the name of your Society indicates a focus on higher education, you have taken steps to encourage links with the TAFE [Technical and Further Education] sector. I welcome this and shall refer today to possible developments in universities, colleges of advanced education and TAFE.

My theme will be that in all sectors of education during the rest of the decade a major requirement will be a capacity to bring about change; and that such a requirement will impose important challenges on those in tertiary education with the responsibility for research and development.

LIKELY DEVELOPMENTS IN HIGHER EDUCATION

A Government has come to power in Canberra with a commitment to increase the participation of young people in all forms of education, including higher education. Political attitudes to the issue of participation in education had begun to change before 5 March, however. Linked with that very important change in the political atmosphere has been a growing realisation throughout the community that the nation will suffer if positive steps are not taken to encourage a higher participation rate of young people in our institutions. The CTEC likes to think that its own Study, Learning and Earning, has contributed to the debate that stimulated consideration of the many issues - educational, economic (including labour force) and social - which are involved.

The debate and commitments by Governments to the improving of participation rates has occurred, however, at a time of severe financial constraint. It is unlikely that there will be any easing of the situation at the time when the Federal Government considers the advice of the CTEC on planning for the 1985-87 triennium. There must be, therefore, in all sectors of education a deep interest in obtaining the best use of resources.

In most tertiary institutions as well as in senior secondary education, 1983 has seen an increase in enrolments and what appears to be a reversal of the trend of the previous six or seven years for participation to fall. Given the very serious worsening of the labour market situation for young people in the past year, such a change of trend is not surprising. It would be very foolish of the education systems to assume, however, that the improved enrolments which seem to have occurred in 1983 meant that educational institutions can relax and prepare themselves for a return to the previous period of growth. If young people are continuing with their education merely to avoid unemployment, the unhealthy situation that Learning and Earning described will not disappear but merely be hidden until an upturn in the economy provides more young people with the option of employment. What I am referring to is the strong evidence that many young people who would benefit from higher education prefer employment if it is available to the programs of education offered in our universities and colleges of advanced education. I found it interesting at the meeting of the Australian Education Council earlier this month that all Ministers expressed doubt that the enrolment upturn was an indicator that education had suddenly become more relevant and attractive to the large majority of young people that we all believe should participate in it. One Minister expressed the fear that this year's upturn in enrolments would be followed by a concomitant increase in student withdrawal before many months had passed.

To understand the situation in which planning for higher education should proceed, we need to keep in mind what seem to be the reasons for the drift of young people away from higher education in the period since 1975. As was pointed out in Learning and Earning, the labour market appears to have a strong influence on the decision making of young people. Two forces appear to act in favour of education - the long-term Australian trend towards increased participation and the operation of the "shelter" effect when labour market conditions are adverse. Two factors seem to have acted in the opposite direction - the perception of the decline in the real financial returns from higher education and the effect of tight labour market conditions in raising the appeal of a full-time job. Such factors work in different ways, of course, on each individual.

The evidence seems to be strong, however, that a central element in the decision making of many young people has been the downturn in teacher education. Many young people in the period to the mid-1970s entered higher education because they were offered attractive teacher education scholarships which not only provided them with more generous support than would be available under, say, TEAS, but also the guarantee of a relatively attractive job on successful completion of a nominated course of study. The downturn in the demand for teachers and the decisions of State Governments to abandon their teacher education scholarship schemes had results which suggest that a good proportion of those entering teacher education did not have very strong belief in the importance of higher education *per se*. It seemed that the offerings of our institutions were, for many, rather less attractive under less generous systems of student support. There were two effects of this. The first was, of course, the decline in the proportion of young people proceeding directly from school to higher education. The second was an impact on certain faculties and departments in higher education sufficiently marked to remind us of the extent to which not only faculties or departments of education, but also faculties of arts and science, had been dependent on the training of teachers for their size.

What seems to have occurred as a result of a reduced demand for school teachers is a reminder of the complexity of factors which appear to influence the participation rate in higher education. Most of you will have read the review of research relevant to this topic which was carried out by Mr Martin Hayden and which provided an important input to the Learning and Earning Study. The most important factors that education planning must take account of are:

The Pursuit of Learning

The intrinsic interest in, or distaste for, learning more about particular subjects.

Career Aims

For many students tertiary education is the necessary precursor to the occupation which they have chosen.

General Uncertainty in Employment Prospects

Some young people are unwilling to undertake full-time study because they fear the job market will get worse rather than better.

Parental and Community Attitudes

There is a great deal of evidence for the continuing importance of these attitudes when young people decide whether or not to continue their education.

Student Assistance

The effectiveness of TEAS in encouraging young people to study has received a deal of examination and there is much meat to chew over in David Beswick's Study. I have already referred to the effects of the disappearance of the generous student assistance available through teacher education scholarships.

Recognition of Achievement

Are there any grounds for the suggestion that a scholarship awarded on academic merit would be a more powerful influence in favour of continued study than the present TEAS allowance?

Opportunities for Mature Age Entry

In many fields of study a young person can defer enrolments for some years without serious disadvantage.

The Costs and Benefits of Higher Education

While there is still a long-term economic benefit to obtain a degree or diploma, it is less than it once was.

These factors are, I suggest, very relevant when we come to consider what needs to occur in higher education if we are to achieve the participation rates of young people that all appear to regard as desirable. As we have argued in Learning and Earning the main scope for growth in higher education will probably lie in generalist courses. There are good reasons for this. Many young people do not wish to commit themselves to a specific vocation when they begin higher education, but would, perhaps, find attractive a course that would be a useful base to whatever career they eventually decide to follow. For many careers a general education of the right kind would be a very appropriate base. There are arguments for the thesis that it is now important to prepare people for life in which jobs will appear and disappear and in which employment will be a smaller proportion of life. A generalist education could well be the best preparation for the changing and fluid world of the future. It is probably unrealistic to expect an expansion and proliferation of specific vocational courses in higher education to an extent that would take up more than a limited proportion of the number of new places we will be seeking if we are to attract into higher education as many as we would hope.

The evidence suggests, however, that existing generalist courses are unable to attract sufficient of our young people to become the focus of that growth we are seeking. Thus, if we examine the composition of recent entry to full-time arts courses, we find that in many universities the normally matriculated young student is in the minority. The cut-off mark for entry to arts courses is significantly lower than the entry mark for most other courses. To a lesser extent, the same comments apply to the nature and quality of students entering the faculties of science.

This suggests a case for change and the development in some institutions of new kinds of courses. On a couple of occasions in recent months I have asked the question of whether there may not be possibilities for development of generalist courses of a kind that we have not yet tried. The answer to this question must lie, of course, with institutions and we must be prepared for a great deal of trial and error. My own view is that there are patterns of generalist courses with which experimentation could be worthwhile. Is there scope for some institutions to analyse more carefully the nature of that element of the cohort of able young people who are not entering higher education. Such an analysis might lead to a program designed to attract at least some of those who do not have a specific vocation in mind. I suspect that if such an exercise in curriculum development were to succeed, the resulting course would be down to earth, in the sense that it set out to meet the young people's needs for knowledge and skills rather than the scholarly interests of staff members. Those needs would be determined within the broad criterion of the knowledge and skills that a young adult should bring to life if he or she is to be regarded as educated. The core would probably be the higher skills in literacy, communication and numeracy which modern society demands and the latter would include an understanding of the new information technology. The other element would be study in depth of one or two other disciplines which would help the individual understand that society. There would be a minimum of electives, the emphasis being on a highly structured course which would be sufficiently demanding to give the student, at the completion of three years of study, a sense of achievement and a qualification which parent and employer would understand.

I admitted, when speaking elsewhere that what I was suggesting could be regarded as merely an extension of a traditional secondary education. Providing it were an extension which, because of its substantial academic content, imposed real demands on students, it would still be valuable. I am encouraged in such a view by the fact that in recent years Harvard has been moving back to a more structured curriculum directed to the old fashioned objectives of producing educated men and women. From another perspective, it is interesting that many employers claim that the main attribute they seek for many jobs is a sound general education.

To summarise my guesses about likely developments in higher education, the most important challenge will be achieving higher participation of young people in a period, at least initially, of financial constraint. Any long-term improvement in participation requires potential students to be attracted, for any of a range of reasons, to the educational programs offered. For this to happen will require more than merely an expansion of what is at present occurring in universities and colleges of advanced education. The changes inherent in such a response may well be painful.

LIKELY DEVELOPMENTS IN TAFE

In TAFE the basic issue is likely to remain that of coping with the continued growth of enrolments that appears to be inevitable. TAFE institutions in recent years have not needed to give much attention to the task of encouraging young people to enrol in courses. Several factors have contributed to the increased pressure on TAFE. TAFE has the strongest links with the labour force and is the most directly affected by changes in the labour market fortunes of the young. Indeed, a significant proportion of TAFE students are participants in TAFE precisely because of their labour market circumstances. They may be apprentices required to attend TAFE under the conditions of their apprenticeship; they may be unemployed young people who undertake TAFE courses to improve their basic skills and longer term employment prospects; they may be young people who proceed to TAFE direct from school to follow some of the new courses that TAFE has devised in an endeavour to respond to the very deep changes that have occurred in the labour market during the past decade. Here I refer, not simply to the increase in youth unemployment, but also to changes in employment itself which have demanded a greater degree of preparation by way of pre-vocational education than was previously the case.

This is not to say that the most recent and acute changes in the labour market will not place urgent demands on the TAFE system. As most of you know, during the past year, there has been a dramatic deterioration in the employment situation for people in the 15 to 24 age groups. Just on 80,000 of the full-time jobs held by teenagers at the beginning of 1982 disappeared in the next twelve months. Intakes into apprenticeship have dropped dramatically - by at least 25 to 30 per cent across the country. Quite apart from responding, therefore, to the general trends in Australian society and the Australian economy during the past decade or so, TAFE will face two immediate challenges. First, a demand that it play a part in providing a relevant education or training program for young people who have left education to seek employment but have been unsuccessful. Let us keep in mind that most of those people had no intention of returning to education.

The other immediate problem, the solution to which will involve TAFE in a major way, is the downturn in apprenticeships. Because of the encouragement of Governments, the years prior to 1983 saw a continuing increase in the intake to apprenticeship. The pipeline effect of this increase will continue to maintain TAFE enrolments in the relevant courses for some time despite the present fall in intakes. Governments will be under very strong pressure, however, to maintain the level of training that was inherent in recent apprenticeship intake levels and it will therefore be necessary to devise alternative programs of training which do not draw upon the direct support of an employer inherent in an indentured apprenticeship.

To some extent a number of chickens are coming home to roost and the only perches available appear to be in TAFE. Until now we have not faced up to the implications of the fact that our existing apprenticeship system is confined largely to a narrow range of male-dominated occupations. We have ignored warnings that better structured forms of training are required for a wider range of occupations than those for which apprenticeship is the preparation. Perhaps the biggest chicken is the fact that until now half our young people have left education before the end of a full secondary course and have never subsequently received any structured education or training. One of the weaknesses in the perches that TAFE can offer is the fact that TAFE is still largely geared to the provision of part-time education and adequate response to the demands I have referred to will almost certainly require an expansion of full-time provision. Such a shift to full-time education will place great strain on TAFE staff and facilities. Staff will be dealing with a different kind of student while many TAFE colleges lack facilities appropriate to full-time students.

An indication of the size of the task with which we are faced can be gleaned by comparing vocational education in Australia with the situation elsewhere. In Germany, for example, young people entering occupations in the catering, clerical or distributive industries undertake structured training through an apprenticeship. In Australia the past few years have seen the successful development of courses for entrants to the catering and hospitality industry but very little, as yet, for people wishing to enter the other industries I mentioned. There seems to be scope to develop training opportunities which have a vocational focus but a core of more general studies which will be of value to young people in a changing world.

IMPLICATIONS FOR RESEARCH AND DEVELOPMENT

If my expectations are in any way realistic, they have important implications for research and development. One focus for action will be in curriculum development. Because TAFE has been faced with these changes for some years now, the central importance of improvement in curriculum development has been accepted. People in TAFE know that even in fields in which TAFE has been operating for many years a full-time course is not merely a part-time course delivered to a different timetable. The partnership between TAFE and employment that is inherent in most part-time courses has to be rethought in respect of full-time courses. Curriculum development is even more important when TAFE is asked to move into fields in which it has not previously operated. As I implied a moment ago, in some of these the Australian practice until now has been to leave the training to the employer. In other cases, TAFE is being asked to mount programs that until recently had not been thought to be needed, let alone to be appropriate, to tertiary education. Some of the transition courses for the unemployed are a case in point.

I doubt whether the need for urgent structured curriculum development has been so consciously accepted in higher education. With very good reason curriculum frequently arises from the interests and competencies of the particular lecturer, not as a result of a formally structured attempt to meet the need of a particular group of students. In many, perhaps most, institutions of higher education, the existing practice will continue to be appropriate. I suggest that there may be other institutions, however, in which a need has emerged for conscious curriculum development to occur in the sense understood in other sectors of education.

Related to curriculum development will be research into the needs of potential students in higher education. A starting point is, perhaps, the work I referred to earlier on the factors which influence young people when they decide whether or not to enter tertiary education. I would be surprised if there is not an increase in the attention paid to these topics. There are other forms of response, of course. Some of us have been critical at one time or another of particular efforts by some institutions of higher education to attract students during the period when the demand for higher education has dropped. Such criticism, if directed to inaccurate advertising or lowering of entry standards, was justified. What should be supported, however, is research which could provide guidance to institutions on needs and interests of potential students with the intellectual calibre to benefit from higher education. Many of our institutions already face strong demand for their courses and are of such a size that there is no need for them to be seeking to tap a new market. For other institutions, however, there would be every justification in their encouraging such research. The objective would not be to get more students into higher education at any cost, or to prejudice in any way the standards or ethos that we attach to the concept of higher education. It would be an attempt to ensure that educational opportunities were made available to as many as possible of young people who would benefit from higher education.

What I have been saying emphasises the importance of evaluation from time to time of existing courses. I need to say very little about this because HERDSA has itself played an active and valuable role in stimulating interest and improving competence in a process which is far from simple.

Another implication for tertiary education of the changes likely to occur during the next few years is that in some institutions there will be increased pressure for organisational and structural changes. It would seem to me that members of this Society would be doing a valuable service to their institutions or systems if they fostered a realisation among others in tertiary education that existing organisations and structures were not sacrosanct. They are a framework intended to facilitate the provision of good educational programs. As with curriculum, they should be subject to examination from time to time to ensure that they are serving that purpose.

The final point I would like to make is that the pressure for change in tertiary education should, if we are fortunate, stimulate the clarification of the objectives of particular institutions. No university, college of advanced education or TAFE institution can be all things to all people. As pressures on the tertiary education sectors increase, as numbers of students rise, there will be for some an opportunity to clarify roles, to foster the discussion within institutions which would lead to sensible decisions on what an institution can do best and, by implication, similarly sensible decisions on what tasks would be better left to others.

TERTIARY EDUCATION IN THE 80's: PATHS TO REWARD AND GROWTH

K.R. McKINNON
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Higher education is as much beset by uncertainties arising from the current economic recession and the concomitant social and technological change as other levels of education. In 1982 my University did not know whether it would balance its budget or end disastrously in the red until well into November because of uncertainty about salary inflation supplementation arrangements. The new Government has announced firmer proposals and the wage pause may ease budgeting problems for the remainder of 1983 but there is still an air of instability in higher education. Growth is not assured; contraction may even be a possibility. Further changes within the sector seem inescapable. How then can institutions be organised to enable those who work in them to have effective and satisfying careers?

The invitation to give this paper asked me to explore the ways forward during the eighties, drawing on experience in other spheres. I therefore do not claim to present a detached view of the higher education scene. I will simply talk about what I see as some aspects of tertiary education which need attention if we are to have vital effective institutions in the eighties.

Issues of importance within higher education institutions, however, cannot be the sole or even the primary focus. External pressures are the most pervasive forces. A decade ago universities were funded by a mixture of federal and state grants, together with student fees. The Whitlam Government abolished student fees and, by arrangement with the states, decreased their income tax reimbursements and took over full responsibility for funding of higher education institutions. While the intentions were entirely honourable the result has been a deliverance of higher education institutions into the hands of a single funding source itself subject to great financial pressures and priorities different from those of institutions. Moreover, the unstable economic environment has restricted its ability to plan ahead with any assurance or stability. Prior to the Federal Government undertaking full financial responsibility institutions were able to work out their own destinies. Now planning in large measure is in the hands of officials outside unversities and CAEs. The outcome, predictably, is a decreased sense of autonomy and lower morale.

Let me illustrate by reference to policies on access. In the late seventies, there was a guideline policy statement about the size of the higher education effort. It was stated that universities each year should take in approximately the same proportion of the age group finishing the HSC the previous year. The policy within two years slipped into a *de facto* policy of no increase in real expenditure. While in 1983 the student demand has slightly increased, the proportion of the age group of students entering direct from the HSC is about 18 per cent less than it was in 1977. Is there a national policy on the proportion of young people who ought to have access to higher education? Well, maybe, but it is really irrelevant because the bottom line is heavily, perhaps overwhelmingly, shaped by the short-term pressures of the Federal budget. It is difficult to foresee any change in this situation in the next few years.

Uncertainty about the future of higher education is most evident in relation to the planning of institutions. It is difficult to the point of impossibility to find out whether the University of Wollongong, situated in a city whose young people are only able to participate in higher education at about half the rate prevailing elsewhere in the State, is to have orderly development so that opportunities become more equal in the foreseeable future. We have just had a visit from the members of the Universities Council who declined the invitation to enter into dialogue with us about our future development, who declined to acknowledge and discuss the responsibility they share with us for planning the University's future. One can only assume on the evidence of such visits that planning is on an *ad hoc* basis where institutions are supplicants not entitled to expect information about their place in a national pattern of development. Only when planning is based upon publicly tested and supported national policies will there be a movement toward more equal educational opportunities in higher education.

Similarly, the passage of time and the lack of growth of resources in the whole sector for a few years, has revealed starkly the inadequacies of the three dimensional split in higher education which started with the Martin Report. The fuss about amalgamations of universities and CAEs at Armidale and Newcastle has revealed an intellectual and administrative vacuum in relation to the future structure of higher education. The present situation cannot last much longer; the Commonwealth Tertiary Education Commission is going to have to tackle the planning of higher education more systematically.

On any dimension the distinctions between universities and colleges of advanced education reveal anomalies which are not merely exceptions but which challenge profoundly the original conception. They challenge that peculiar philosophy of knowledge which claims there is a clear distinction between theoretical and practical questions, which should result in a clear separation of types of higher education institutions.

The distinction between universities and CAEs is often made on the basis of one being applied or vocational in orientation (colleges of advanced education). If this were true, the colleges would be the base for professional training in law, medicine, and other professions. But those professions were too well entrenched in the Universities to be detached. Even the less well entrenched have managed to avoid rationalisation. Accountancy, for example, is now offered in both universities and colleges. Similarly, there can surely be no more applied study than business administration, but the pressure of the last year or two has been to entrench it in universities and in particular in only one or two universities.

Take another dimension. It is not true that institutions can be divided into those which do research, i.e. universities, and those which do not, i.e. colleges of advanced education. In all universities there are many academic staff who do no research and have not done so for years. In fact, even if the term "research" is broadened to include both empirical research and scholarship which involves critical analysis, the numbers of university staff who have not published in a refereed journal would be high, perhaps as high as a half of the total. In the colleges of advanced education, particularly the big ones like RMIT, WAIT, there are many staff who do important and excellent research and not only on applied topics.

Young staff, too, migrate between the two, universities and CAEs, although with a discernible preference for universities because of the higher status and allocations of time for research.

One is forced to the conclusion that it is no longer reasonable, if it ever was, to distinguish between higher education institutions on the basis of their teaching and research, nor I suspect can we clearly distinguish between them on the basis of repute, whether in the general community or among the employer community.

The divisions between CAEs and the Technical and Further Education area are equally murky. In recent years the original staple offering of CAEs, the three year Diploma, has declined by a third while degree offerings have markedly increased and there has been a similar though less marked 11 per cent increase in the other direction, the two year Associate Diploma courses. In education and several other fields, including some pilot offerings in liberal arts, the degrees are hard to distinguish from university offerings. At the other end, TAFE disputes the need for Associate Diplomas which they claim overlap Certificate offerings. With these roles being defined away to Universities and TAFE colleges, wherein lies the future of many of the present Colleges of Advanced Education?

The rash of *ad hoc* amalgamations could only have occurred in the present policy vacuum. The previous Prime Minister was able to assert his will without clear justification simply through the power of the purse. Some of the amalgamations on face value seem justified, others appear pretty silly. The political reprieve which Armidale and Newcastle may receive simply underlines the fact that the whole process has been undertaken in the absence of a clear perspective about where higher education is going. Incidentally, in my own University the amalgamation made sense; it has proceeded amicably and smoothly, partly because of juxtaposition of the two institutions on the one campus, partly because the CAE was virtually a one-purpose institution and partly because, even after amalgamation, the University is still barely of viable size - but that does not detract from the overall charge of ad hocery.

In my view, the distinguishing characteristic of universities must be their excellence. They should take those able and willing to persist to the highest levels of scholarship and research; they should seek to create and sustain intellectual elites, but they need not be socially elite, nor reproduce unearned privilege between generations.

We may not be able to finance all levels and the full range of offerings in every institution so there may need to be distinctions between institutions - but not on the present intellectually indefensible bases, nor on equally spurious grounds of supporting institutions in capital cities. There may need to be more clearly established links between universities and groups of undergraduate colleges. My point is not so much to define the solution as draw attention to the problem. There is clearly a pressing need to consider systematically the future of the whole of the higher education sector.

The need may necessitate the formation of a special review committee along the lines of the Murray or Martin Committees or it may be able to be undertaken by the Commonwealth Tertiary Education Commission. Either way, it needs to be undertaken soon and within a context of establishing broad guidelines for participation rates and for the next stage of development of a national system of higher education. The nation needs a system which provides reasonably equivalent access in all parts of the country and which has equal concern for the nurturing of excellence in teaching and in research. In passing, one should note that such a rethink of the structure of higher education would entail a rethink of the structure of the Commonwealth Tertiary Education Commission, hopefully with some realistic appreciation of the parameters of the functions it ought to have, or be limited to, as the agent of the sole provider of funds.

Finally, of course, among the external forces which will determine the patterns of higher education institutions in the eighties will be the pattern of student support. The present crazy quilt of youth support which makes it more profitable and practicable for a young person to go on the dole and enrol as a part-time student than to gain access to the Tertiary Education Assistance Scheme and enrol as a full-time student needs to be rectified. I understand that the federal government intends moving on this question as soon as circumstances allow. Abolition of the most blatant anomalies will not, however, necessarily solve all of the problems. Social change has resulted in young people feeling the need to be independent as early as eighteen. Schemes built on the presumption of students living at home and parental responsibility (and capacity) for their support are no longer realistic. Schemes which presume that by the time students are 21, at most, they should be regarded as responsible for themselves and thus entitled to some form of support, irrespective of their parents' means, offer the most promising ways forward in terms of providing opportunities to which all young people will have access.

Because institutions are so much shaped by these external pressures, it isn't really surprising that much of the discussion within institutions in recent years appears to be related to the lack of resources and to efforts to maximize resources for one's own department or school. One might be excused for gaining an impression that a "successful" department is one which has got more than its fair share of resources or at least done well in the competition. Indeed, judgements of the research excellence of individuals or departments often use the measure most to hand - the amount of external research money granted. While acknowledging that research grants from the ARGC are given after peer scrutiny of applications, which provides a partial surrogate for direct measures of quality, it still seems strange to me that discussions of quality of research are not more firmly anchored in the importance of the intellectual ideas put forward or more particularly, the importance of the research outcomes. The use of such yardsticks indicates, however, the sense of diminished real autonomy which has emerged from a decade of sole Federal funding.

In this atmosphere of lowered morale, not enough attention is being given to "re-energising" institutions internally. I do not say this in any sense of accusation, for like other chief executives of higher education institutions, a major preoccupation of my time recently has been financial stewardship. Nevertheless, to blame the financial situation for every problem is akin to the celebrated example of declaring war on a neighbouring country if there is unrest and dissension at home. The external enemy provides a common cause which temporarily papers over internal problems.

I ask myself whether it is necessary to have physical and student growth for those within the institution to gain a sense of reward and personal growth. I believe and hope that the answer is "no" for it is fairly clear that the continuing challenge of the eighties will be to create dynamic higher education institutions in a non or minimally expansionary environment. The lack of a public constituency in favour of higher education together with the national budget-deficit do not give any cause to believe that the remaining years of the 1980s will provide for growth. While the last of the bulge in enrolments is not due to pass out of secondary schools until the late eighties and thus will affect higher education institutions for the remainder of the decade, the period of the nineties will see smaller numbers in each age group, deterring over-enthusiastic expansion.

Non-expansionary times, although new to the experience of many of us, are the more normal times. Almost any institution can look good when it is putting up new buildings, hiring new staff and expanding its student numbers. Unfortunately in those times drones, incompetents and inefficient systems, which are the weeds of hot-house growth, flourish unnoticed.

Attempts to create the internal conditions, which will induce personal growth and a sense of satisfaction among those within each academic community, will necessitate changes in the nature of institutions, primarily in the direction of greater encouragement towards collegiality, re-examination of the systems which operate within the institution, renewed emphasis on individual responsibilities and greater concern for the personal development of all staff.

When I returned to university life two years ago, I was struck by the number of academic staff dissatisfied with their life as academics and suffering from a lack of personal security - people who appear to be performing well below their real capacity, both in terms of energy levels and their feeling of making a worthwhile contribution. Similarly, the atomised approach, the rare examples of collegiality, of sharing and working together towards some outcome from which all would get satisfaction and enhanced reputation and status, was striking. Although the latter is less evident in small institutions than in large ones, these impressions crystallise in the view that higher education institutions, even for people with tenure, are frequently lonely places, breeding personal insecurities, cynicism and competitive jealousies rather than places which are sustaining, intellectually creative and exciting.

In Papua New Guinea, during my time, especially in the latter years, there was a great sense of satisfaction among almost all who worked there because the goals were clear and the progress made towards them was also evident. People shared their work and their successes (and their failures) because the problems were always more important than individuals. It was interesting, exciting and satisfying.

Clearly universities need to find better ways of energising staff to minimise the chance of adoption of those prevalent defensive devices - hypercriticism, cynicism and suspicion of motives. I do not claim to have answers for this problem but I am certain it is not an inescapable outcome of no growth. We must at least try to tackle this fundamental issue. One approach I am trying is to encourage a greater sense of participation, of sharing in the planning and development of the University, of encouraging staff to set clearer personal goals and to gain a stronger sense of the satisfaction to be gained by working with others in an open, sharing, creative way. The details will no doubt have to be different for each institution. The important thing is to flag the issue and to try to emphasise the need for action aimed at developing in staff members greater confidence, high aspirations and a willingness to look for better, more collaborative ways of pursuing satisfying careers.

Reviews of faculties and departments have become popular as a means of trying to increase the internal effectiveness of universities. In my University these reviews have largely had membership from the department being reviewed and other parts of the University together with one or two senior academics from the relevant discipline from other universities. The University invokes reviews on a regular cycle, if a Chair becomes vacant, or for very specific reasons, including a possible need to abolish a department. Our experience has been that reviews are helpful for re-organising the curriculum internally. The process, which seems to take several months, does encourage academic staff of a department to reconsider the whole of their offerings and a good process or evolution of the departmental curriculum seems to ensue. But that seems to be the limit of the usefulness of a review. It does little for individual staff development or for collaboration within and between departments. Nor does it help in consideration of the future of a department, at least where departmental staff are heavily represented on the review committee. Australian higher education institutions, as institutions, appear to give very little consideration to reviews of the structure of their offerings for degrees and diplomas. Each has an array of offerings - the gradual accumulation of additional offerings over a series of years. Mechanisms for taking the whole of the offerings and considering them afresh are difficult to devise and even more difficult to have accepted. The review process does not, in my experience, offer a route through that problem. The University as a whole would probably have to construct *ad hoc* machinery including external input and provide resources and time for an exhaustive educative process if it was to achieve worthwhile reconsideration of its basic offerings. Some institutions believe they do this, but the reality and the rhetoric are at odds with each other.

Higher education units in universities themselves were a product of the expansive sixties. I have never been entirely clear about their primary function. Originally the emphasis seemed to be on improved tertiary level teaching but some units appear to have become research oriented. Although the number of new academic staff coming into the higher education scene has diminished, there is still an appreciable number of new staff each year. No teacher preparation is required of a university teacher anywhere as far as I know; even those universities which give post-graduate diplomas in tertiary teaching appear not to have a performance requirement as part of the preparation. The result is a continued high reliance on the presentation of summarised information in a lecture format, supplemented by smaller tutorial groups. A large number of tertiary teachers are reported by students to have basic teaching faults - inaudibility, distracting mannerisms, poor preparation and incoherence, but I understand that there would be very strong academic staff resistance to requirements for basic communications competence.

The folklore is that it is difficult to evaluate good tertiary teaching. That claim is probably right insofar as it is impossible to evaluate the inspirational effect of incidental conversations and encouragement. On the other hand, there is no gainsaying that better lecture room competence would greatly enhance teaching in universities. What do higher education units do about this need? Many more academics would enjoy their teaching if they were better at it and if a much more organised approach was taken to acquiring and honing appropriate skills.

Similarly, relatively little is done to induct young academics into the research process. It seems to be assumed that there is no need to change from the past. Aspiring academics are supposed to undertake an apprenticeship through a doctoral program, while employed as tutors. After successful completion of a doctorate, the graduates are assumed to be competent researchers, well prepared for university careers. A very doubtful proposition. Some do not have skills in even setting out a description of proposed reseearch. An appallingly low proportion of young academics even know how to make applications to government bodies for research funds. While funds for ARGC research projects have not increased at the rate we would all like, it is a fact that there are increasing numbers of government departments at the federal level with funds to be applied to questions of interest to those departments, many involving basic research issues. This contract research rarely relates to "dirty issues" which raise ethical problems for researchers. The flow of funds and the contact between academics and grant organisations could be improved by better proposals, by willingness to learn each other's jargon, by concern to understand the real problem, and by willingness to deliver on time. I haven't been able to discover much apparatus for helping young people acquire necessary research skills.

In my University internal research funds are distributed competively, but again I doubt the preparedness of many junior academics, more particularly their confidence needs to be built up so that they can get off the launching pad successfully. There must be a role for higher education units in increasing the satisfaction to be gained by individuals in the research function. The rate of research participation could certainly be lifted well above the present unsatisfactory levels.

Universities are not well organised for the fact that academic staff tend to specialize more as they get older, most often diminishing their involvement in research but sometimes undertaking less teaching in favour of more personal research. No specialization of function among staff allows this concentration to develop in a way which the institution recognizes and provides for in its internal arrangements. Could not some staff be mainly teachers and some mainly researchers - with the University organised accordingly?

The current non-growth situation is of course limiting opportunities for the normal academic rewards and career mobility. One consequence is the diminished opportunity for people to take up tutorships. More generally, the low level of new vacancies has been compounded by the low level of turnover from retirements, a position which is to continue until the early nineties when staff who started their careers during the expansion phase of the postwar era begin retiring. The Government in its electoral platform endorsed an AVCC proposal for the universities to be able to engage postdoctoral students on research programs for up to five years. Such a scheme will provide one way of creating opportunities for those who want to make a career in academia and who are willing to do research for a relatively low stipend while they wait for a vacancy. It should not be seen as a panacea because after the first few years, until vacancies increase it may compound rather than ease the pressures. It may nevertheless be worth doing.

Early retirement has been suggested as another means of coping with the non-growth and low percentage of retirements situation. Since retirement in New South Wales at least is already at 60 years of age, early retirement would mean going down to 55 or earlier. One University in another state has an early retirement scheme for a limited number of academics but this is as much a staff rationalisation scheme as creation of vacancies for younger people. My University has arranged for a small number of people to change to half-time while keeping up their superannuation arrangements. If such pilot approaches could be extended it would be possible to create more promotion vacancies, while allowing those moving to the half-time basis to create a situation for themselves in which they would be able to concentrate on their main interests.

Irrational fears of abolition of tenure have been prevalent for many years. Although the 1982 Senate inquiry into tenure strongly endorsed the principle of tenure for a high proportion of staff (90 per cent) FAUSA is still campaigning strongly for tenure for all staff. If that view were to prevail the pressures within universities would be exacerbated, not diminished, as institutions would have virtually no scope (assuming no growth) for adjustment to adjust to student demand. Morale would be even lower as inequities between staff in resources and work loads increased. Better to enjoy the real advantages of the tenure system, despite the fact that some really able people can only get fixed term appointments. Their lot could be improved by early retirements or part-time appointments of the kind discussed above and by action by academics themselves to institute processes of review and counselling for tenured non-producers. Single source funding carries within it inevitable accountability requirements which may be unexpected and unanticipated in their consequences if opportunities offered by the tenure report for the development of a sensible review system are not taken up.

Many academics who are approaching the age when early retirement might be possible can't wait for the day when they will be able to be quit of their present roles. They have lost (or never found) their scholarly vocation in the true sense of that term and do not yearn for freedom to pursue scholarly interests. Those who have been miscast by life in this way ought to be helped to move on in the best possible way. The schemes need to provide flexibly for those burnt out at fifty and those still going strong at sixty-five.

Individuals' prospects for appointment to a senior position in another university or for promotion internally, are, of course, less than they were. Eventually, there may have to be restrictions on promotions from, say lecturer to senior lecturer to maintain reasonable balance of senior and junior staff within the institution. As the velocity of circulation of academics has decreased there is more likelihood of people becoming stale through too long in the one place and the one role.

The inventive institution will make it easy for staff exchanges between institutions, between government and universities and with business - or allow a year or years off. Renewal of scholarly excitement may come from new contacts, new situations or simply from a fallow period in another occupation. Study leave, that much prized feature of academic life, will continue to offer refreshment and renewed zest - being more imaginatively planned, in conjunction with the institution, to allow updating of offerings, and ventures into allied fields.

It is noticeable that the dashed expectations coming from no-growth are leading to the transformation of staff associations into unions and pressures for industrial awards, first in New South Wales (Newcastle University) and in parallel at the federal level. Therein lies danger for us all, but particularly for staff satisfaction. The present loose situation has allowed retention of the traditional freedoms and undefined rights of individuals. Action begets reaction; moves to define rights which staff believe are being chipped away by erosion of resources can only lead to definition of what are not rights, to definition of obligations, to expectations and measures of performance of obligations, a tricky and uncertain road to at least bureaucratisation and possibly to elevation of the institutional rules above the needs of scholarship. I frankly fear the headstrong people who cannot see beyond the short term shortages of resources. Academic life will be the poorer for an industrial confrontation approach. Better to continue to press for updating of these delicate and subtle understandings which have governed academic life to date.

Let me summarise the points I have made. I would put as my first requirement for building a positive and satisfying situation in higher education the necessity for the Government, as the sole provider and virtually the arbiter of higher education, to develop and state clearly the policies which will govern the sector and, in particular, those which will govern access to higher education and the nature of the institutional offerings.

Second, I put the need to reconsider the internal arrangements of institutions, particularly the leadership approach and the internal processes. Vice-Chancellors will need to be more creative and resourceful people than has been necessary in the past. In growth situations it is sufficient for the chief executive to be a reasonable administrator, given the personal respect of academic staff and a fair capability for staff relations. These same skills will enable chief executives to get by in the future, but will not be sufficient to create and maintain good morale, a strong sense of purpose and confidence within the institution. Staff development, promotion and similar arrangements affecting staff morale will need to be redeveloped.

An important need, for example, is to draw on the knowledge widely available about the nature of creative organisations and the way in which they need to function to achieve this goal. Whereas many of the processes of governance of higher education institutions now are based on a quasi-authoritarian structure with veto rights at every level, which encourages the *status quo*, the pattern of governance of the future will need to be more positively directed towards creative development of the institution.

In previous roles, I have been deeply impressed by the way in which the right institutional conditions foster the development of committed, idealistic, productive people. In New Guinea the task itself was enough. In the current no-growth situation the leadership role must be a search for processes through which individuals will identify and commit themselves to scholarly tasks in ways in which the intrinsic rewards of making a contribution loom as large as the extrinsic rewards of promotion and salary. Status, reputation and respect are rewards just as much available in no-growth situations as they are in growth situations. The problem is to get people to see this and to take advantage of these rewards in planning their lives and careers. As I see it, we are moving towards a more normal situation in which there are many opportunities as there have been in the past for rewards and for growth. The opportunities will come from re-emphasising the primary and traditional goals of scholarship in combination with changes in the internal functioning of institutions sufficient to foster personal development and satisfaction.

EVALUATION IN A UNIVERSITY ENVIRONMENT

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The formal education development of an academic can be subdivided into a variety of parts. First comes grades 1 to 12 at school; then the undergraduate preparation; then post-graduate work, often associated with part-time tutoring in a university; appointment as lecturer, promotion to senior lecturer; promotion to reader; and appointment or promotion to professor.

When I had written down those seven stages of progression I was reminded of Shakespeare in "As You Like It" identifying the seven ages of man and, indeed, there are some parallels. It is not impossible to see the post-graduate student "sighing like a furnace, with a wilful ballad"; the lecturer "full of strange oaths, jealous in honour, sudden and quick in quarrel, seeking a bubble reputation" and senior members of staff like Shakespeare's justice," with eyes severe and full of wise saws and modern instances".

At a professional meeting of HERDSA it would be inappropriate to talk about evaluation for the unwilling schoolboy or the undergraduate, where evaluation in the first instance leads to a tertiary entrance score enabling the successful candidate to enter university or college of advanced education, or the frequently used continuous assessment of undergraduates, the merits of which process continue to elude me.

In this talk I would like to discuss the evaluation process as associated with the exits and entrances of lecturers and other players.

Appointment at any level, lecturer and above, normally requires advertisement of the position internationally and, necessarily, comparative evaluation of the applicants. In all cases referees' reports are sought and, in most cases, interviews are held of short-listed candidates. Evaluation in this context includes qualifications, disciplinary publications, the reputations of the candidates as scholars, teaching ability, and what I might describe as the overall ability to get along with colleagues. The process is often long drawn out and considerable care and expense is taken to attempt to ensure that the best candidate is selected.

The process in the University of Queensland, for example, provides for a selection committee to be set up, chaired by the Pro-Vice-Chancellor responsible for the particular department, the head of the department and another member nominated by him, a member of a cognate department appointed by the Pro-Vice-Chancellor, the Dean of the most appropriate faculty and a member of the Standing Committee of the Academic Board. The recommendation from that Committee goes to the Deputy Vice-Chancellor (Academic) and to the Vice-Chancellor for approval.

Inevitably, the recommendation from the Department will be important in the outcome of the deliberations; nevertheless, it would be wrong to assume that the Committee and the two senior administrative officers regard their roles as being rubber stamps. While the selection of a short-list of candidates will be biassed towards the research record or research potential of the candidates (since only hearsay evidence will be available on their communicative skills) performance in a seminar situation during interview periods, plays an important part in the final determination of the candidate to be recommended for appointment.

It is hard to over-emphasise the importance of the initial appointment since, in Australia, few appointees to tenurable positions have subsequently been denied tenure in their institutions.

Once appointed, a lecturer assumes the same responsibilities as those of his or her colleagues. Even if there has been nil or limited teaching experience, appointment to lecturer presumes that the individual appointed will be at least a satisfactory performer in the lecture theatre. Until recently, evaluation for tenure has occurred just over two years after initial appointment, by which time glaring deficiencies as a lecturer presumably will have been reported to the head of department and/or his or her colleagues, and the complete absence of research interest would have been identified. Because of the nature of most research, however, significant research progress during the period may be difficult to establish, either by the candidate or head of department, while initial difficulties as a lecturer may be regarded as transient.

One notes Francis Cornford's definition of a lecturer as "a sound scholar, who has been chosen to teach on the ground that he was once able to learn".

The apparent difficulties in the evaluation of teaching performance have long been recognized and again using the University of Queensland as an example, assessment of teaching ability is done with reference to a so-called Guide to Assessment, used in connection with tenure and promotion considerations. The head of department seeks referees' reports from those who may have some aquaintanceship with the teaching ability and the Guide seeks information regarding knowledge of and attitude to the discipline; attitudes to teaching; planning; concern about improvement and the implementation of such attitudes; preparation for classes and of material for students, as well as the public performance aspects of teaching. Concern is given to assessment skills and procedures related to the determination of grades; finally, the candidate's relationship with students, including availability for personal consultations, recent activity, helpfulness, inspirational characteristics are reported on. Each referee is asked to identify how the lecturer compares in terms of overall teaching performance with other lecturers known to the referee, on a 1 to 6 point scale.

On the research side, initial success in obtaining external financial support for research, where this is seen as appropriate, is clearly advantageous, while the writing-up and publication of work done prior to joining the particular university and, in a minority of cases, of research actually undertaken within the two year period is evaluated. The evaluation of research performance is generally considered a more objective mechanism.

Once over the hurdle of tenure, the next usual obstacle is promotion to senior lecturer, which may be regarded as the basic career grade for most academics.

Application for promotion to senior lecturer is followed by assessment of ability and achievement of the candidate; to qualify, a candidate at the University of Queensland for example, must, and I quote from the application form: "(a) have qualifications which, when viewed overall, are of an appropriate standard; (b) achieve appropriate minimum standards in relation to formal academic qualifications, scholarship, original achievement as evidenced by research and publications or other creative work, teaching ability and experience and service to the university including the efficient performance of administrative tasks and committee work".

Both in considerations for tenure and promotion to senior lecturer, and from senior lecturer to reader, preliminary investigations are undertaken by area sub-committees of the Promotion and Reappointments Committee of the University. Recommendations from the sub committees are then considered by the full committee which includes elected members of the Academic Board, the President and Deputy President of the Board and, in the case of tenure considerations, the Deputy Vice-Chancellor (Academic) who chairs the committee.

Recommendations on tenure are communicated to the candidate and the head of his or her department and 14 days are provided for additional material to be presented to the Vice-Chancellor who is authorised by Senate to determine whether or not tenure should be granted. In the case of promotions, the Vice-Chancellor consults with the Promotions Committee, whose final recommendations are presented to the Academic Board for approval, prior to seeking executive approval from the Vice-Chancellor.

Promotion to readership from senior lecturer follows the same pattern. In some universities promotion to a Personal Chair is possible but is rare. For example, at the University of Queensland the number of appointments over the past 20 years has averaged one per year. It is generally regarded that promotion to a Personal Chair is considerably more difficult than success in a competition for appointment to a Chair. A separate Personal Chairs committee evaluates all nominations for such an award.

In recent years, all Australian universities have reviewed appointment, reappointment and promotion practices. There have also been two major reports published on an Australia wide basis. The first of these, in 1981, related to academic staff development and was published by the Australian Vice-Chancellors' Committee; the second on "Tenure of Academics" was a report by the Senate Standing Committee on Education and the Arts and published in September 1982. As a result of individual university initiatives and initiatives which have been

been stimulated by these two reports, a variety of changes has been implemented in many Australian universities.

As I indicated before one of the most important areas is the length of the probationary period for newly appointed staff. At the end of April last year, six months after the release of the AVCC Working Party report, though not necessarily related to that report, the standard three year probationary period had been extended to five years at the University of Queensland and the Institute of Advanced Studies at A.N.U., to four years at Flinders, A.N.U., Melbourne, La Trobe, Adelaide and at Deakin with the issue being under review at all other universities other than Western Australia, Griffith and James Cook University.

Coupled with the consideration of change in the length of probationary period, induction programs for new staff had either been implemented or were under consideration at 8 of the 19 universities with regular advice to probationary staff implemented or under consideration at 15 of the universities.

One of the criticisms assessed among universities is the fact that research performance, scholarship and publication are seen as the most important criteria for appointment, tenure and promotion, with lip service being paid to good teaching. Many of the group that I am addressing see the development of better teaching as a prime responsibility. That some staff may lose their enthusiasm and effectiveness as they grow older is understandable; university people are after all part of the human race. It would be unlikely that the university population would not reflect some of the characteristics of everyday society. This must be true in the school system as well.

I would argue, however, that it may be of less importance in the university system. A basic problem for students entering tertiary education is the transition from a teaching environment to one of learning. At Oxford and Cambridge in the past, one went to university to "read for a degree". The university was not seen as a teaching institution, but as an environment where the curious could find books and scholarly people to consult as they broadened their education.

The multiversity of today is of course a teaching institution as well as one of research, particularly with the growth of professional faculties. Nevertheless it is still true that the onus of learning has to be transferred to the student, rather than that the institution merely continue the teaching practices of the school system where the prime responsibility rests on the teacher. I am sure that there are examples in universities where poor teaching has successfully goaded students to use their own resources to compensate for inadequate "spoon feeding" by the staff.

The fact that better learning habits may on occasion derive from poor teaching practice is however no excuse for the sloppy or slothful instructor. The question is what to do about it. What we need is a more effective mechanism to select only those individuals who are likely to be enthusiastic teachers and researchers into the permanent staff in the first place, and then to provide appropriate motivation to keep them active in the future.

The Australian Vice-Chancellors' Committee hosted a Conference of University Governing Bodies in 1979. Sir Zelman Cowen opened the conference. In his opening address he said he was deeply concerned with the importance of teaching. His experience in Oxford and in the great American Law Schools suggested to him that the best and most distinguished academics committed themselves to undergraduate teaching roles.

In Australia, it had been said by some that in promotion in academic reward terms, there was inadequate encouragement for teaching. Sir Zelman said that he was never really satisfied by the outcomes of debates on promotion criteria. It was said that teaching quality could not be measured in the same way as a written research output could be measured, both quantitatively and qualitatively. He suggested that there should be some system of reward for the dedicated teaching and mentor service which enthuses and commits students and which set them in the path from which honours, postgraduate and research students emerge, so as to give meaning to the proclaimed role of the modern university. He stated that one of the best assurances of good teaching would be greater esteem and better reward for good teaching performance. The emphasis on honours and postgraduate work and research is a central and distinctive role of universities which must not be allowed to devalue the importance of the undergraduate work that the university undertakes.

The AVCC Working Party, which I convened, questioned the view that there is no way to judge whether or not teaching is of good standard. Unless one goes simply by the weight of publication, subjective judgements have to be made about the quality of research and scholarship. In important ways these judgements are little different from judgements about teaching. Those charged with the responsibility of making such judgements must be as well informed as they can be.

In the foregoing I have referred to evaluation basically in terms of determining whether someone should be retained by the university on first appointment or in a tenured position or should be promoted. After appointment these constitute just two instances in a career which might be 30 or more years long. The value of evaluation lies not just in these summative judgements at particular points in career, but in the feedback it provides to staff members as to how, in the considered judgement of their colleagues, they are performing on all fronts.

The North American system with which I am familiar provides for evaluation annually or biennially for all staff members. While this could be seen as a major administrative work load, in practice it is not so time consuming. In these universities, the results of such evaluations relate directly to advancement in salary as well as in rank. My experience leaves me in no doubt that these regular reviews have a significant positive effect, both in staff development and morale.

Quite apart from their impact on advancement in a particular university system, perhaps the main merit of evaluation is the feedback that it gives to the individual indicating ways in which he or she may improve their contribution. While this will, perhaps, have major impact in the earlier parts of a career, there are salutary benefits to be derived from frank and honest evaluative processes at any time.

Although the AVCC Working Party suggested that the development of an effective teaching evaluation program would be a value not only to the institution and its students but also to the instructor, little headway has yet been made. Perhaps because of the vacuum in this area, student groups in different universities have developed "alternative calendars" to advise incoming students of the perceived merit of particular courses and instructors. The Senate Committee I referred to earlier has recommended periodic reviews of academic staff every five to seven years; I would feel this frequency to be too low to be of much value to an academic.

The role of evaluation is to provide both the individual and the institution with an informed view of the quality of performance. There are many ways to improve the performance, both in teaching and research, particularly for younger staff members. Useful information should not be too long delayed. Evaluation should not be seen as the institution against the staff member but rather as of value to both.

SPECIAL EXPERIENCE PROGRAMS AS PATHS TO REWARD

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INTRODUCTION

In Australian universities, the need for academic staff to have opportunities for professional refreshment and renewal has long been recognised through the provision of sabbatical leave. It was generally expected that such leave would be taken overseas to allow for sustained research and scholarship in centres and tertiary institutions offering facilities not available in Australia. In earlier years, when travel was much slower, more precarious and relatively more costly, the expectation of being required to take an overseas sabbatical could in some cases have been regarded as a punishment rather than a reward.

In the advanced education sector (from the outset), study leave covered a much broader spectrum of activities than in universities. It initially majored on opportunities for improving the academic qualifications of staff. However, Professional Experience Programs, introduced as a result of the Tertiary Education Commission's Report in 1978, focussed attention on work experience to improve professional and vocational knowledge, professional contacts with staff of other tertiary institutions and applied research (where considered appropriate). Such programs have been in operation since 1979 and together with the "Outside Studies Programs" recommended by the Tertiary Education Commission for Universities, were expected to be fully operational by the end of 1981.

Though my approach to the topic in hand is largely influenced by my knowledge of professional experience programs in the CAE sector and particularly in the former Kelvin Grove College of Advanced Education, I would like to use the term "Special Experience Programs" in a broader sense than has come to be understood of professional experience programs.

Let me begin by identifying some of the specific kinds of special experience programs and from there move on to some of their more general features and benefits.

KINDS OF SPECIAL EXPERIENCE PROGRAMS

Rewards in the form of special experience programs may be available in some of the following ways:

1. Special studies undertaken at other institutions to update knowledge and professional skills. Mostly such studies would not lead to higher degrees but in special cases, additional academic qualifications might be obtained as part of a planned staff re-training and re-deployment program or in preparing staff for a new course development within their institution.

2. Work experience in the workplace for which graduates are being prepared or in organisations relevant to the staff member's academic or professional interests. This may involve secondment to a government department or to private industry, e.g. a teacher educator going back to teach in a school or work in the curriculum branch of an education department; a lecturer in accountancy working for a period in a national or international firm of chartered accountants. It may involve practical field experience such as an art lecturer working in a production pottery or a scientist learning to use special equipment in a laboratory for a relatively short period.

3. Educational visits giving opportunities for personal contacts and interaction with other scholars and professionals with related interests. On occasions these may be fact-finding missions on behalf of a department or of the institution as a whole.

4. Research projects of mutual benefit to the institution and industry or government agency, as well as to the staff member personally.

5. Teaching exchanges involving staff of two institutions arranged either on a regular, institutional basis or on an individual basis with the approval of the institutions concerned. In a steady state of staffing, I believe staff exchanges not only bring rewards to the participants but they provide stimulus and opportunities for professional growth for other members of staff through contact with visiting faculty.

6. Guest lecturing opportunities at other institutions over short periods of time, particularly where differing academic calendars allow this to occur without disruption of regular programs.

7. Special projects for outside organisations and professional associations e.g. as Artist-in-Residence for the Crafts Council in a specific location or special projects undertaken while remaining at the home institution but on release from normal duties such as a consultancy or survey of the needs of industry for a specialised institutional service.

This by no means exhausts the possibilities for special experience programs that can provide personally and professionally rewarding experiences for staff, but these examples may serve to illustrate some of the pertinent features of such programs generally.

SOME FEATURES OF SPECIAL EXPERIENCE PROGRAMS

Because of the wide variety of activities that can be included in special experience programs, it is difficult to give a precise specification of their essential features. However, the following characteristics are evident in most programs:

1. The programs have fairly specific objectives that enable the participants to focus their energies on particular aspects of their normal institutional work or on some new development or experience. This opportunity for concentrated endeavour can of itself be quite a welcome relief from the multiplicity of responsibilities associated with normal academic life within a tertiary institution.

2. Most special experience programs tend to be of fairly limited duration - from several weeks to several months but normally with an upper limit of six months. Teaching exchanges often extend to a full academic year. This time limitation has a number of benefits -

    * Some programs can be undertaken in non-teaching periods of the academic year with minimum disruption to the academic program for students and fellow staff members.

    * A staff member can engage in a special experience program more often than is permissible under the traditional study leave schemes of twelve months duration after a period of six or more years of service. In a rapidly changing society with ever advancing technology, this has obvious advantages.

    * More staff should be able to participate more frequently than in traditional staff development programs.

3. Often special experience programs of significant benefit to the individual and the institution can be undertaken at relatively low cost to both parties concerned, e.g. a secondment to a government agency or work experience in private industry can cost little more than the regular salary of the participant.

4. Special experience programs are usually expected to relate to the needs of the institution as well as to those of the participant and to benefit its program in some way as well as personally enriching the staff member concerned.

5. The participation of a staff member in a special experience program is not normally a right. Careful consideration has to be given by a staff member to developing a suitable program which requires an adequate justification in order to gain approval. This in itself is a good exercise and a challenge to staff, so that there is a certain amount of reward experienced just by having the program approved.

REWARDS OR BENEFITS OF SPECIAL EXPERIENCE PROGRAMS

Usually the most tangible rewards from special experience programs are those new insights, learnings and experiences gained or those skills developed directly from participation in the program. As with most things in life, one gets out of a program what one puts into it.

However, there are other less direct rewards that accompany participation in most special experience programs but which are just as valuable, particularly in the long term. These include the following:

1. Invariably such programs bring the participant into personal contact with other scholars and professionals who provide an intellectual stimulus that is not readily achievable in other ways. In addition, there is usually a network of beneficial acquaintances established, the members of which serve as valuable resource persons for the staff member, the institution and its programs in future developments.

2. Special experience programs also offer the reward of keeping the participant in touch with what is happening outside of his/her own institution. They help to break down the ivory tower image of tertiary academics and make staff members more aware of their role and that of their institution in the real world.

3. Another obvious but none-the-less highly prized benefit of special experience programs is the opportunity they provide for staff to update various facets of professional knowledge and practice in their chosen field. Almost inevitably there is an enhancement of the relevance and vigour of their subsequent teaching and research.

4. One of the most appreciated, though not the most highlighted of rewards of a special experience program, is the opportunity it gives for a staff member to stand back from the grind and routine of academic institutional life - to take stock as it were; to review his/her present commitment and involvement and set new goals and directions for the future in the light of the new experiences gained.

5. Fortunately the personal rewards of participating in special experience programs tend to be rather contagious. Usually there is not only a spontaneous sharing of ideas and experiences with fellow colleagues on return but quite often other faculty are stimulated to make enquiries and are given an incentive to broaden their horizons and seek new experiences also.

6. I referred earlier to the need for special experience programs to be carefully justified in terms of their contribution to the staff member's effectiveness in the institution and the needs of the institution itself. The inherent benefits of such an exercise were also mentioned. However, from my experience it would still be true to say that most special experience programs that receive approval tend to be geared more to individual self-renewal than to program or institutional needs. Rarely are they undertaken in the context of some systematic, coherent plan that is designed to meet institutional/departmental goals or even an institutional set of objectives for the personal and

professional growth of faculty members. For example, there are very few programs amongst academic staff that focus on issues such as effective academic leadership, improving decision-making skills, team building, planning processes etc., even though such experience is often sorely needed within departments or other groupings of academic staff. I simply make the observation here that if at least some special experience programs were geared more to the goals of an institution or department and to some overall program of staff development, they could even lead to reward in the form of promotion or selection for special office within the institution itself.

CONCLUSION

In reflecting on the paths to reward offered by special experience programs, I was reminded of the story I read of an American, visiting a small English town, who had lost his valuable dog. Through his hotel he asked to have a notice printed in the local evening newspaper offering £100 reward for the dog's return. Evening came but no paper appeared and after waiting for some time he decided to go to the newspaper office for himself. There he could only find the night watchman. "Isn't the newspaper coming out to-night?" he asked. "I doubt it sir" said the night watchman, "the whole staff is out looking for a lost dog."

In relating this to special experience programs, my comment is simply that I would hope that the nature and extent of the rewards associated with such programs would never be such that they become the primary focus of staff members, diverting their attention from the major purposes for which they are employed.

I know we live in a very materialistic society in which self-actualisation and self-gratification are uppermost in many people's minds. But I believe it would be a sad day if we ever got to the stage where academics and professionals could only see rewards in terms of financial gain, status and material benefits such as might be associated with promotion, tenure and participation in special experience programs. Let's not overlook rewards in the form of satisfaction to be gained from teaching well, from making new discoveries through research, from sharing our knowledge with students and colleagues and seeing both them and our profession grow - these in themselves are very special experience programs.

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CHAPTER 2

INSTITUTIONAL CHANGE, INSTITUTIONAL PROVISIONS FOR REWARD AND GROWTH

Rewards for tertiary teachers and their personal growth as teachers occur in an institutional environment which by its provisions, policies, priorities and climate influence the availability and acceptance of reward and growth opportunities. In a time of non-expansion with little mobility much of the reward has to be in terms of job satisfaction, status, and public and peer esteem. A responsible and caring institution must be seen to value just these. In an institution where teaching is given little weight in promotion a plea for staff to revitalise their teaching and gain satisfaction from doing teaching well is of little effect. Similarly, a citation for excellence in teaching is only of value in an environment where excellence in teaching is seen to be valued in promotion decisions.

The first paper in this chapter by Stone and Silverthorne, "Creating a climate for excellence in an academic environment", is therefore most relevant to the conference theme. Starting from general organisation principles the authors attempt to show how Batten's seven phase program for organisational revitalisation and renewal is applicable in each phase to universities. The seven phases are appraisal of the present organisational climate; development of a grand design; development and establishment of objectives; organisation planning, development and design; setting of performance standards; establishment of an appropriate communication and motivation activity; and setting up of appropriate control mechanisms. The model is geared towards planned change; later papers present descriptions of institutional climates, of development and establishment of objectives, of setting of performance standards. Many papers address what is and what should be. This paper represents an attempt to provide a framework in which what should be, can be realized. It is useful, too, for its attempt to apply general organisational theory to educational organisations.

Genn's paper, "Towards new accountability policies pertaining to university teaching", is also concerned with excellence. While Stone and Silverthorne advocate general performance standards, Genn sees no necessity for coercive evaluation. He considers it the duty of every university teacher to strive for excellence in teaching and would like to see excellence in teaching supported by an extensive program of pre- and in-service training for teachers, on a non-competitive basis. The required standard would be achieved through participation in these programs and would be a pre-requisite, not a criterion, in applications for promotions. Genn's model is based on his belief that university teachers will strive for excellence in teaching if they are given the opportunity to seek help and are provided with a supportive collegial network.

While Genn talks about ideal states, he does acknowledge that competitiveness is a feature of university life. Payne in her research clearly points out that promotion is the main prize to be won in the university competition. Her paper, "The impact of declining promotion opportunities", shows that promotion opportunities are unequal between various universities and between various disciplines, as well as for men and women. Underlying the research is the assumption that everyone will strive for promotion. What is not examined is - how many staff applied for promotion and did not get it. Some of Payne's suggestions for alleviating the strain which declining promotion opportunities create are discussed also in other papers: increased mobility between institutions and between departments, and early retirement.

Imrie in "Promotion: a case for development" surveys promotions to readership in New Zealand universities, and in the Victoria University of Wellington in particular. Reactions to the promotion procedures derived from interviews with applicants for promotion show how much promotion is prized and how indifferent institutions may appear to their employees. This part of Imrie's paper serves to lead into Chapter 3 which discusses staff perceptions of institutional provisions for reward and growth.

CREATING A CLIMATE FOR EXCELLENCE IN AN ACADEMIC ENVIRONMENT

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This paper is about the relationship between excellence and change and its implications for universities. Specifically it describes a change process which universities could use to facilitate the ongoing achievement of excellence in all academic activities. Although the model was developed with business organisations in mind the principles seem to us to have considerable relevance to universities.

The process is based on J.D. Batten's seven phase program for organisational revitalisation and renewal which he proposes as a way of creating a servo-climate for results.

The seven phases in the process are:

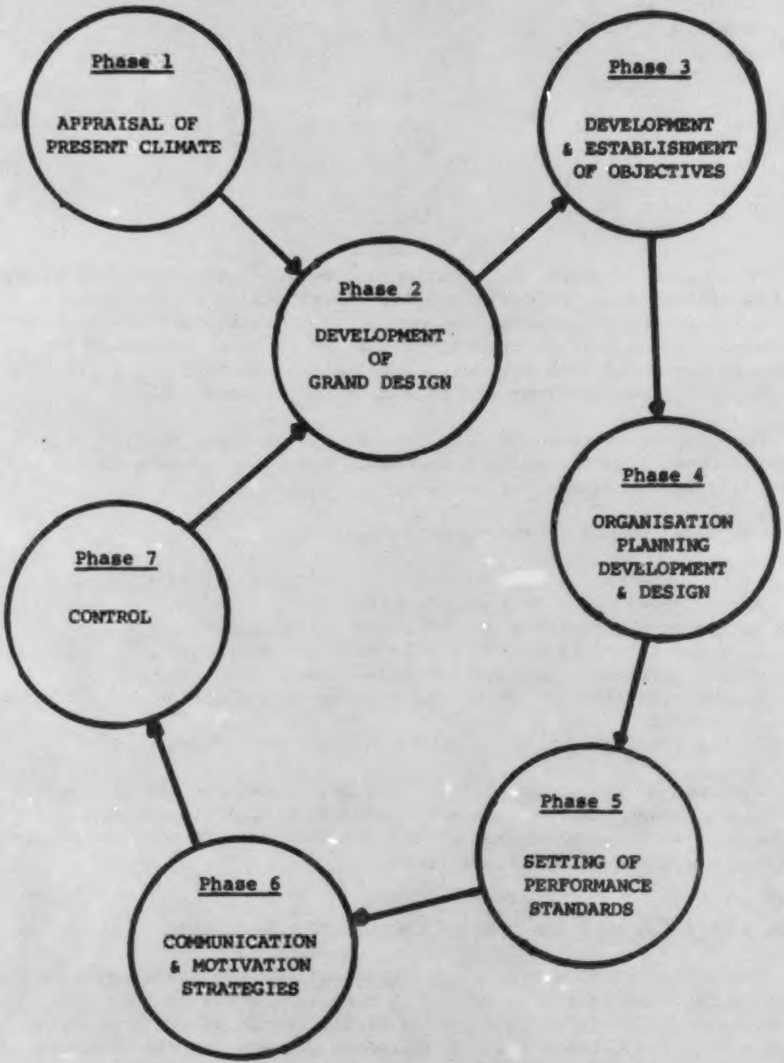
1. an appraisal of the present organisational climate
2. the development of a grand design
3. the development and establishment of objectives
4. organisation planning, development and design
5. the setting of performance standards
6. the establishment of an appropriate communication and motivation activity
7. the setting up of appropriate control mechanisms

The rest of the paper amounts to a description of the phases in the guided change process. A short commentary will follow each phase description to focus attention on special issues to be considered when applying the process to universities.

PHASE 1: APPRAISAL OF THE PRESENT ORGANISATIONAL CLIMATE

The first phase of the Batten organisational change process involves taking a searching look at the present state of the organisation. This entails a review of all facets of the institution which affect its climate and a questioning of their appropriateness in today's world. The list of questions would be very large but one could start by asking about its overall mission, charter, or purpose followed by an identification and examination of its philosophy, principles, basic beliefs and policies. What are they? Are they clear and explicit? Are they still appropriate or do they need

SERVO-CLIMATE FOR EXCELLENCE


Phase 1
APPRAISAL OF PRESENT CLIMATE
Phase 2
DEVELOPMENT OF GRAND DESIGN
Phase 3
DEVELOPMENT & ESTABLISHMENT OF OBJECTIVES
Phase 4
ORGANISATION PLANNING DEVELOPMENT & DESIGN
Phase 5
SETTING OF PERFORMANCE STANDARDS
Phase 6
COMMUNICATION & MOTIVATION STRATEGIES
Phase 7
CONTROL

Based on the Batten servo-climate for results model.

updating? Are they all consistent with the larger philosophy? Are the philosophy and policies understood and accepted by the staff? Are there clearly defined organisational aims and objectives? Are there clearly defined standards of performance? Are these communicated and understood? Do the standards represent excellence? Are they being achieved? Is there a consenus of commitment within the institution to the philosophy, policies, objectives and standards? Are rewards aligned with the achievement of organisational objectives? Are people accountable for their performance? Are there appropriate incentives to encourage excellence? Are the personal needs and aspirations of staff members integrated with the needs and objectives of the institution or are they pursued separately? Is there a spirit of cooperation and collaboration or do individuals and departments work in isolation or competition? Is the organisational structure right for achieving the desired aims? Are resources directed in a balanced way toward achievement of organisational aims? What are the lines of authority? Are they accepted as valid? What are people's attitudes toward change? What are the policies and practices for personal and professional growth? What staff development programs exist? What is the present state of staff morale?

Commentary

The University as an institution has been in existence now for several hundred years. During this time universities have multiplied throughout the world and participation rates have steadily climbed. So on the whole the university seems to have been a pretty successful species of institution. Despite this success there is no doubt that in recent times universities have been experiencing change problems. Massive change has been thrust upon universities through the political mandate for mass higher education. While we have been involved in accommodating this change we have not been very active in initiating change. The idea of organisational change by choice is more attractive than change by reaction and so the Batten model is very interesting. Batten's first phase is illuminating. It suggests that we have paid too little attention in our review processes to our basic philosophies, principles, beliefs and policies. Perhaps that is one reason why it has been so difficult to effect change in our organisational structures, reward systems, incentives and morale. If we could articulate and secure general agreement about our beliefs and philosophy perhaps we could then agree on what changes are needed in structures and rewards. Would this help us make more rapid progress in rewarding excellence in teaching? Maybe we do have to go all the way back to philosophy to achieve this. If so the first phase of the process for organisational renewal would need to be as thoroughgoing as the Batten model suggests.

PHASE 2: DEVELOPMENT OF A GRAND DESIGN

Once the institutional climate has been analysed and thoroughly understood, the next phase of the Batten process is to visualise and articulate the kind of climate that would be ideal. The premise is that as with individuals, organisations tend to drift with the tide unless they develop an ambitious dream of what they would like to become and a clear vision of the heights to which they could rise. Since the grand design will reflect the beliefs and values that are important to the institution, the basic philosophy needs to be clarified and made capable of providing the foundation and impetus for the grand design. The grand design is a plan for the future development of the institution. If the grand design grows naturally out of the basic philosophy and values of the institution it will have the power to inspire the commitment and enthusiasm of people to see it through to accomplishment.

Commentary

The notion of developing a grand design as part of the organisational change process is clearly powerful. But the acceptability of a grand design would depend on the success of the university in articulating its mission, philosophy and policies in a way that would embody the values and aspirations of the staff. This task represents a new approach and would require great skill.

A president of Harvard when asked what it took to make a university great replied, "Three hundred years". If antiquity really were the criterion of greatness, Australian universities could do little but wait. But there is a more valid measure of the success of university organisations - excellence. Excellence is an unusually powerful word that evokes strong and deep feelings. It means different things to different people and as it is pondered it reflects our own aspirations and our own notion of high standards. Although hard to define, we recognise it when we see it. One sure way, however, of giving the word meaning is to consider its antithesis - mediocrity. Mediocrity implies commonplace or average. Having a goal of excellence means we need to make a commitment to improve our performance and raise our standards as time goes by. An excellent university of ten years ago would hardly be excellent if it were the same today. The goal of excellence requires a commitment to embrace and initiate change.

To aspire to greatness and to conceive a lofty grand design for the future requires vision. To achieve it requires courage. Like the turtle, we will need to stick our necks out if we wish to make progress. The goal of excellence is unarguably an appropriate one for universities and is capable of inspiring commitment from its members. It is therefore essential to create a climate that encourages excellence, for how many among us will be inspired to excellence in an environment where mediocrity is tolerated?

PHASE 3: DEVELOPMENT AND ESTABLISHMENT OF OBJECTIVES

Once the grand design of an organisation has been articulated and agreed upon, specific objectives and action plans need to be developed to ensure that it becomes a reality. These are arrived at through a participative process with members of staff at all levels involved to ensure that complete commitment is gained.

For the institutional objectives to be viable it is imperative they be integrated with the personal needs and objectives of members of staff. This process requires work to be organised so that adequate time is set aside for this to be accomplished. Organisational and individual needs need to be blended and harmonised so that the organisation's objectives are sure to be achieved, for otherwise people will be working in ways that do not contribute to the realisation of overall goals.

Commentary

At present most universities make use of an elaborate committee system to evaluate which goals and projects should go forward. This system seems to work quite well in terms of avoiding mistakes, perhaps partly as a result of the careful analysing and information handling style of the majority of academics. Drawbacks to the committee system are well known: the process is slow and time-consuming and decisions tend to be cautious. Risk-taking is generally avoided.

If the institution's basic philosophy and grand design were understood by everyone decision-making and objective setting could proceed more easily and faster. Committee discussions would be expedited and relevant new ideas generated. If each department and individual had specific goals and objectives and these were communicated to Academic Senate or whatever body was appropriate, it would facilitate seeing quickly whether the mosaic of goals fit together well as a whole and whether there were any obvious departures from mission, policy, or grand design. This would free senior staff from much of the endless rounds of trouble-shooting, problem-solving and chairing of committees and give them time for more forward planning and opportunity search activities.

In addition every member of staff would have a better conception of his or her purposes and be in a better position to act independently and with confidence in carrying out their work. The effectiveness of goal setting has been well established and it seems clear that people with written goals achieve them surprisingly quickly and with results that often exceed their expectations. If such an approach to planning were adopted at universities it could well benefit performance in the areas of research, teaching, academic leadership and community service for all staff, particularly for newer members of staff and those tenured staff whose actual performance is far less than they are capable of.

Everything hinges on the capacity of the organisation to clearly and effectively articulate its mission, beliefs, policies and grand design. Successful business corporations have done this extremely well and have experienced growth and a corresponding extension of influence. They seem to be in charge of change while we are reactors to change. If we could adapt their approach and some of their tools in this area perhaps this would enable us to gain more control over our destinies.

PHASE 4: ORGANISATION PLANNING, DEVELOPMENT AND DESIGN

When the right objectives have been developed and set so that the grand design for the institution may be realised, the next phase in the change process is the development of an appropriate organisational structure. By organisation we simply mean how the total resources of the institution - people, money, materials, information, space and time are deployed. Staff at all levels need to be aware of lines of communication and decision-making authority. The rationale for the organisational structure is that it exists to facilitate the achievement of the established objectives, and the organisational structure needs to be explained to staff in order to gain their acceptance of it and so that they can use it effectively.

It is important that the organisational structure be simple and flexible as well as logical and practical, so the focus of efforts of staff at all levels can be on the achievement of relevant goals.

Commentary

All present signs indicate that the financial stringencies that universities have had to live with in recent years shall continue in the foreseeable future. Under these conditions it is a necessity that our organisational structures be streamlined and also right for our tasks.

It is certainly a fact that the recent cutbacks have resulted in anomalies in the organisational structures of Australian universities. Because of the policy of natural attrition the cuts have fallen unevenly. Both academic departments and administrative offices have been affected. In addition our current lack of consensus about goals has made it complicated and difficult to decide which positions should remain vacant, which should be refilled, and which few new ones should be established. Here again the university committee system appears to have worked well but slowly. There is another big constraint operating on universities in this area which private sector companies do not have to the same degree, namely position permanency until retirement. Because private sector companies have a fairly free hand to move permanent staff around internally into newly created positions, they are in a stronger position to reorganise their structures. In universities this redeployment flexibility is not so readily available and so it takes considerably more effort and time to reorganise.

Perhaps if we had the clearer sense of purpose which the earlier stages of the Batten change process seems capable of producing, it would make it easier to see how reorganisation should proceed, and so make it more acceptable to those who are to be asked to move around. Perhaps too, some staff would initiate their own transfers more readily if they could perceive that a sideways move would facilitate the achievement of valued organisational goals and not therefore represent an uncertain change to their status. Being realistic about the possibilities, however, requires taking into account the current lack of flexibility in the system. Perhaps though, if we were using the Batten process, the realisation of changes needed would motivate us to lower the barriers to flexibility in this area.

PHASE 5: PERFORMANCE STANDARDS

If organisational objectives are to be fully met it is essential that standards of performance be established and maintained. In a climate that encourages and fosters the pursuit of excellence the focus is not on what people do but rather on what they get done. In other words, there is an emphasis on the quality of results achieved rather than on the quantity of activities engaged in. People can be very busy without being at all effective. By effective we mean achieving the output requirements of the job both quantitatively and qualitatively. It is only if these output requirements are known and insisted upon that superlative performance can be expected. Top performance usually occurs only within a framework of high expectations. Inconsistent or poor performance is more likely to occur if there are no clearly established standards or no procedures for correcting unsatisfactory performance.

Commentary

Industrial psychologists generally agree that the conditions necessary for a motivational climate to exist within an organisation include that people know exactly what is expected of them, that they have regular feedback on how they are performing relative to these expectations, and that rewards received are commensurate with performance. It seems that universities could well benefit by applying these fundamental principles. Standards of performance are not usually defined in universities and most position descriptions are still written in terms of activities rather than results requirements. As a consequence, there is uncertainty about what standards of performance are expected in the key areas of research, teaching, administration/ leadership, and community service.

It is true that the absence of explicit performance standards has not prevented universities from expanding the frontiers of knowledge through their research programs. But it could be asked how much would research improve, particularly that done by younger academics, if there was a clear idea of the criteria by which those research efforts were related to tenure and promotions decisions? Also wouldn't advances in teaching effectiveness or academic leadership in Australian universities be more likely if effective performance in these areas was defined?

Also the absence of performance standards could well be the cause of many academic staff failing to perceive a need for personal and professional development. University staff development offices are frustratedly aware of the difficulty in attracting even junior academic staff to their courses, seminars and workshops. For people to want development they must perceive a need for it. In what circumstances are people most likely to see a need? We would suggest it is when there is a gap between actual performance and expected performance. It could therefore be said that staff development would be very much more meaningful and attractive if performance standards existed.

The Australian Vice-Chancellors' working party on academic staff development recommended in its 1981 report that each university develop a declared policy incorporating, "... a formal evaluation program for all staff involving systematic and regular review of performance in all roles. Such evaluation should be comprehensive both in terms of activities evaluated and sources of evaluative information used. Evaluation should be undertaken for both formative and summative purposes". Such programs, which are now at various stages of discussion or implementation within Australian universities, provide the framework and opportunity for the formulation of performance standards. This is a very encouraging development for it gives us the chance to determine results requirements for leadership, research, teaching, and community service. This should not be viewed as a mechanistic exercise but rather as an opportunity for individuals to become involved in determining standards of performance for themselves within a framework of institutional expectations. It is only if performance standards are mutually agreed upon that we can realistically expect strong commitment to them.

The ability of senior staff to provide useful guidance to junior staff would be immeasurably improved by the availability of agreed upon performance standards. By helping academic staff to set and achieve goals that stretch their capabilities they will be assisting them not only to play their part successfully in achieving excellence, but also in helping them to raise their self-esteem. Thus performance standards would also highlight the need for leadership training for senior staff so that they can recognise and carry out their role in assisting people to develop their potential.

PHASE 6: COMMUNICATION AND MOTIVATION

If the first five phases of the program have been carried out properly much important communication will have taken place already. The philosophy, basic beliefs and principles of the organisation as well as its policies, aims and objectives will be understood by staff members. Clear objectives and performance standards will enable staff to understand the specific results required by their positions and to direct their energies toward achieving them. Effective communication results in understanding. When people understand and agree with the goals of the organisation their commitment is given naturally. When every member of the organisation is motivated about his or her job and is aware of how his or her efforts fit together with the efforts of others excellent achievements can be expected.

Commentary

In the absence of clear communication about performance expected in the four areas of research, teaching, administration and community service, it is easy to understand why efforts tend to be concentrated on research. Research is a path to promotion and the supreme accolade of the discipline - international recognition. Apart from such things as the intrinsic enjoyment of being a good teacher, and the extra salary attached to a Headship, it is generally the case that at present there are few perceived rewards or incentives to compete with the strong research motivation in universities.

If a Batten type servo-climate were in place in a university presumably the motivational picture could be quite different. For example, if performance standards were available for research, teaching, administration and community service, it would be possible to structure rewards to encourage excellent performance in any one or a combination of the areas. Under these circumstances people could be encouraged and rewarded for special efforts in areas particularly required and valued by the institution. Assuming that various combinations would be valued, clear communication of the policy about this would by itself enable staff to focus their efforts on those patterns of effort which were congenial to their talents and relevant to the larger goals of the organisation. Such a situation could provide the university with an effective method of directing efforts where they were most needed. So the creation of a Batten type servo-climate in a university would seem to have the potential to motivate staff to achieve excellence in presently undervalued areas such as teaching. This could be very helpful. It is an area where a need for change has long been recognised but has been very difficult to effect.

PHASE 7: CONTROL

Most control procedures in organisations are designed as mechanisms for reviewing what has happened in the past. Comparative data is painstakingly compiled. Trends are thoroughly analysed. The information is then evaluated and interpreted to explain what has happened. In the servo-climate model the control phase is conceived as a forward-looking mechanism. Looking constantly at what has happened in the past is like a driver of a car always looking in the rear view mirror. If he spends too much time doing this it will not be long before he runs off the road. What he should be doing, of course, is keeping his eyes on where he is going with just an occasional look behind. The destination in the servo-climate model is the grand design. Is the organisation on course toward its vision of excellence?

If the organisation is failing to reach the destination it has charted for itself, it should complete the loop by returning to phase 2 and proceeding to the necessary modification and updating phases 3,4,5, 6, and 7. It would need to be asked if the grand design for the organisation were still valid or whether it is nothing but a "pie in the sky" dream. If it is the latter then modification is required to conceive a realistic goal. If, however, the grand design is realistic and achievable it would need to be asked if there were a genuine commitment to the organisation's philosophy and its basic beliefs and values. If not they may need an update. Moving on from there, the overall objectives would need to be evaluated for soundness. Do all staff understand them? Is there a strong and determined commitment to their accomplishment?

The organisational structure should then be critically examined to see if it is facilitating the achievement of organisational objectives or getting in the way of them. If the organisation structure is indeed simple and flexible it will be possible to adapt itself to facilitate the desired results. It should then be investigated to see if the standards of performance that have been established are being maintained or whether they have been allowed to slip. The next thing to do would be to see if communication was effective throughout the organisation. Finally it should be ensured that every member of the organisation is committed to and strongly motivated to achieving the overall objectives. So it can be seen that the control phase is in fact an on-going process of enquiry, looking at the health of the organisation and making the necessary interventions to correct situations that mitigate against excellence being achieved.

Commentary

Once again Batten throws interesting light on our traditional ways of doing things in universities. At present our practice seems to be to conduct formal reviews on a periodic basis, generally at the school or departmental level. The Batten model would encourage us to examine ourselves at the institutional level and provide us with a means of continuous enquiry. Again this seems attractive, from because it is a more fundamental and therefore a more powerful enquiry, and also because it would enable us to check our progress and steer our course much more efficiently.

Adopting a forward-looking rather than a retrospective approach is also a powerful concept. It takes a much more positive approach to change. Rather than dwelling on where we have gone wrong it asks us to focus on what we have to do to get where we want to go.

Control based on a process of enquiry with reference to progress toward agreed goals would seem to provide a practical framework for decision-making, resource allocation, and rewards for performance. Necessary and appropriate interventions would seem to be easier to identify and undertake for clearly rational reasons than is presently the case, when so often timely and appropriate intervention is difficult or even impossible.

CONCLUSION

In his opening remarks to the sixth International Conference To Improve University Teaching in July 1980 Chancellor T. Benjamin Massey of the University of Maryland University College observed:

> "... public insistence on what we have been calling "accountability" has intensified, and we see with alarm that the parties to whom we are asked to be accountable are not always the appropriate ones, and that the criteria against which our viability is measured are often imposed by external agents, some of whom are impatient with our ponderous academic machinery. Possibly the most galling fact is that many of us have only ourselves to blame for the present eroded condition of our self-governance authority. We have not acted fast enough, or thoroughly enough, to implement our responsible-ness, our accountable-ness in ways meaningful to our individual institutions. At most universities, academic goal achievement studies -- assessment of learning outcomes -- are only beginning to be undertaken systematically. Some of us, for that matter, have been slow to become convinced that we are accountable. What we have not managed to decide among ourselves frequently has been decided for us."

These sentiments, so forthrightly expressed, are also an apt description of the situation for Australian universities. In the past twenty years we have seen a number of committees formed to recommend changes to the university, the most recent being the Senate Standing Committee Report on Academic Tenure.

Generally their advice has been wise but as with so many institutions with long records of achievements, universities have changed only very slowly. Existing models for policy determination and problem resolution have served universities well for many, many years. If the academic machinery has been ponderous it has always ensured that decisions were well considered from every viewpoint and were of high quality. In a different age it could have been argued that it would be foolish to tamper with a system that has served us so effectively. Unfortunately what was deemed effective even ten years ago would not be considered effective today. In today's fast-paced world, universities need to adapt themselves constantly to the changing demands of the society of which they are part to escape public criticism and censure.

Accepting that change is a fact of life, the issue facing universities is not one of deciding how to adapt to change but rather being able to develop strategies to plan, direct and control change. The servo-climate for excellence model may provide the vehicle to do this. The appeal that the model holds for us is that it provides a useful vehicle for self-initiated change that in no way compromises the character of the university.

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TOWARDS NEW ACCOUNTABILITY POLICIES PERTAINING TO UNIVERSITY TEACHING

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I INTRODUCTION

The purpose of this paper is to suggest that some current or planned accountability practices pertaining to university teaching are not what they should be or might be, and that some new notions of accountability and new policies and practices are required. This paper will merely sketch the outline of what is seen as the problem and also an outline of its possible solutions. The suggestions concerning both the problem and the solutions are equivalent to hypotheses and as such could serve as stimuli to discussion, argument and empirical kinds of enquiry.

The paper will be presented in three sections, as follows:

II Preamble: Problems with some present and projected accountability policies and strategies pertaining to university teaching
III Particularities of some suggested improvements in accountability policies and strategies pertaining to university teaching
IV Accountability, reward, competition, coercion, and the ideal academic society.

II PREAMBLE: PROBLEMS WITH SOME PRESENT AND PROJECTED ACCOUNTABILITY POLICIES AND STRATEGIES PERTAINING TO UNVERSITY TEACHING

1. Who is accountable to whom for what?

It is not saying anything new or controversial to begin with a statement that teaching is clearly a major component of the work of the university and the university teacher, and that the teaching work needs to be done at the highest possible level. While our focus here is on the accountability of university teachers for the quality of their teaching, it might be useful, and perhaps slightly novel, to put this teacher accountability in the context of other kinds and aspects of accountability that appear germane to the focus of the discussion. The university, for example, is accountable to the society which supports it, and the society is accountable to the university, for the kind and degree of support it gives the university. The university teacher is accountable to the department and central administration for the quality of his or her teaching, and these administrations are accountable to the university teacher for the support they give him or her. The university teacher is accountable to his or her peers for the quality of his or her teaching, and the peers are accountable for the support they give the teacher. Emphatically, of course, the university teacher is accountable to his or her students for the quality of teaching given to them, and, perhaps less often noted, the students are accountable to the teacher for the support they give the teacher.

All these accountability themes are linked by a common concern with fostering efforts by the university and the society to maintain and enhance what writers of an earlier age, and of more modern times too, have called the Idea of the University (Newman, 1852; Moberly, 1949; Cowen, 1972). This Idea is not easily conveyed, particularly in summary form, but it seems basically to involve the paradoxical nature of the university as an institution where a community of scholars, both students and teachers, is given freedom and opportunity by the society to pursue truth in the communication and advancement of knowledge, even when this truth and its pursuit may disturb the society. Anything which does not foster and prosper both community and scholarship in the university is at odds with the Idea of the University, and any accountability policies or practices that do not foster and prosper both community and scholarship in the university are, of course, inconsistent with the Idea of the University, and indeed inimical to it.

2. Some current and planned accountability strategies apparently unwise and dangerous

For reasons only sketched here, some current and planned accountability strategies relating to university teaching are apparently defective, and therefore apparently dangerous to the welfare of the university institution itself, its students and its teachers. These strategies are strongly established and rampant in North America, and are increasingly being used, and recommended for use, in Australia (Australian Vice-Chancellors' Committee, 1981).

Typically, in these strategies, data relating to university teachers and their teaching, and involving perceptions and judgments made by students and peers concerning the nature and quality of the teachers and their teaching, are collected in a mandatory, coercive fashion, and used to make summative evaluations which then serve as a basis for decisions relating to promotion, tenure, retrenchment, and the like.

The data gathered are of a kind and quality that cannot, in the nature of things, do justice to the richness, complexity and variety of phenomena that university teaching may comprise. Any assumption that a set of numbers, scores or other gradings based on these data constitutes a proper estimation of teaching commitment and quality appears to be a dangerous over-simplification, and a travesty of the nature of teaching and of the university teacher's individuality and autonomy.

Apart from the gross inadequacies of the associated data-gathering procedures, these accountability strategies may be shown to be a dangerous folly, not only because they are coercive, but also because they threaten the very nature and existence of the university institution.

The university, as it has evolved to this day, is a community of scholars. It may be shown that both genuine community and high quality scholarship in the university are in jeopardy, when coercive accountability strategies are used in relation to university teaching. The threat to community in the university comes via erosion and corrosion of interpersonal trust, respect, cooperation and affection, between teacher and teacher, teacher and administrator, and, most important, between teacher and student. The threat to scholarship resides mainly in the reduction in quality of the conceptualisation of teaching and learning, and is manifest in the consequent emergence of teacher and student behaviours that appear to be dysfunctional and counter-productive (Kerlinger, 1971; Raskin and Plante, 1979; Machlup, 1979; Ryan, Anderson and Birchler, 1980).

It is pertinent to note here that while all the problems associated with coercive accountability strategies relating to university teaching exist, irrespective of the economic climate in which universities operate, it is the case that times of economic difficulty are likely to make mandatory and coercive aspects of accountability strategies even more coercive and mandatory, with the dysfunctional and counter-productive teacher and student behaviour even more pronounced. University teachers predictably might react more counter-productively and dysfunctionally under circumstances where such cues as "shape up" or "ship out" may be present (Powell, 1978; Perlberg, 1979; Cross, 1977).

3. The notion of the university's accountability for its accountability policies and strategies relating to teaching

If current and planned accountability strategies relating to university teaching are as they have been described, viz. (i) coercive in nature (ii) classifiable as a folly, because they are coercive, and particularly because they issue in counter-productive and dysfunctional behaviours of teachers and students and (iii) in sum, such as to undermine and destroy the Idea of the University, because they threaten the health and vigour of its community and scholarship, *then*, clearly, the university needs new accountability policies and strategies to apply to university teachers in relation to their teaching. An accountability policy that relies on coercive strategies issuing in dysfunctional and counter-productive outcomes, would amount to irresponsibility. There is a second or higher order of accountability, where the university is accountable for its accountability policies and strategies, to ensure that they build up and not endanger the university, its teachers, students and supporting society.

There is another fundamental problem concerning the university's accountability for its accountability policies and strategies relating to university teaching, viz. the fact that very few university teachers have undergone any substantial teacher education programmes aiming to improve theoretical understandings and practical performance in the special field of university teaching (Imrie, 1981; Genn, 1982). Apart from the untoward consequences of current coercive accountability strategies used in relation to university teaching, it seems at the least an inappropriate accountability strategy for the university to employ, that submits teachers to mandatory and coercive assessment of teaching but does not systematically and substantially provide both pre-service and in-service teacher education programmes for the teachers. The very lack of pre-service and substantial and continuing in-service provisions in itself is an indictment of the university's accountability policies.

Refinements and improvements in the university's interpretation of its higher-order accountability for its accountability policies and strategies relating to teaching will ideally arise from careful considerations made by people in the university itself, in accordance with the values for which the university stands (Partridge, 1979; Staley, 1979; Boud, 1980; Imrie, 1981).

III PARTICULARITIES OF SOME SUGGESTED IMPROVEMENTS IN ACCOUNTABILITY POLICIES AND STRATEGIES PERTAINING TO UNIVERSITY TEACHING

1. Accountability of university teachers in the context of duties and standards in teaching

When the university administration and individual teachers accept the notion of accountability for university teaching, this is equivalent to an acknowledged responsibility for doing the teaching and doing it at the highest possible standard. But what are the duties of teachers, and what are the standards of excellence? Also, and important here, what do not constitute standards of excellence?

It is trite and vague to observe that the *duty* of the university teacher is to strive for excellence in teaching, but just a little less common-place if a rider is added, such as "bearing in mind the university teacher's other duties and their attendant demands on the teacher's time and energy". Clearly any accountability strategies pertaining to university teaching should take cognisance of the fact that university teachers must also engage in other work than teaching.

To make a blunt statement about excellence or quality of teaching at the outset here, but one that is supported by evidence earlier noted in this paper, it is suggested that excellence in teaching, be it in matters of commitment or performance and achievement, is *not* to be defined or measured in terms of what students or peers or administrators acting in some mandatory and coercive manner or situation, in the capacity of evaluators of a university teacher and his or her teaching, might say or think constitutes excellence in teaching. As a corollary policy statement, it would follow that under no circumstances should a university teacher be required to undergo coercive, compulsory or mandatory evaluation or examination or assessment of his or her teaching by students, peers, administrators or for that matter by any one else.

It is harder to say what excellence in teaching *is*, but it might be helpful to remark that the achievement of excellence is more appropriately viewed as a journey, or as a matter of a continuing development, rather than as a final destination or status (Gaff and Justice, 1978).
This journey is a matter of striving to learn more about teaching and to apply these learnings in the performance of teaching, and this journey *is* the teacher's duty, divisible into a number of constituent duties.

It is, for a start, the *duty* of the university teacher to continually strive to learn as much as possible about the theory and practice of teaching, in its mechanistic, technological, creative and existential aspects, and to endeavour to achieve excellence in teaching in the light of this learning about teaching.

It is the *duty*, too, of the university teacher, as part of the quest for excellence in teaching, to learn as much as he or she can, about the students taught, their origins, development, their social, emotional and intellectual needs, learning styles, abilities, attitudes, aspirations, perceptions and opinions. These perceptions and opinions, particularly those that students have concerning the nature and quality of the teaching they are receiving, and its impact upon them, are obviously of great significance to the students, and to the university teacher whose duty it is to assist them to learn. (Pace, 1975)

Again, it is the *duty* of the university teacher to work collaboratively with his or her peers, in providing the best possible teaching of the university's students, and to learn whatever he or she can about teaching and its improvement from constructive advice and suggestions offered by peers, or sought from peers.

Further, because teaching in a university cannot be properly understood, carried out or evaluated, without reference to the nature of the university as an institution, it is the *duty* of the university teacher to know and understand what has been, earlier in this paper, called the Idea of the University, and to contribute towards debates concerning interpretations and elaborations of the Idea of the University, for this day and the future.

2. Accountability of the university for policies and strategies to assist university teachers to discharge their teaching duties

Having set out university teachers' duties, the next point to be made is that it is the *duty* of the central and departmental administration of the university to assist the university teachers to fulfil their duties and obligations just outlined.

It has been suggested earlier in this paper that some present and planned practices of universities that may be aimed at improving teaching and encouraging or constraining teachers to teach well (however defined), do not indeed foster good teaching, and in fact appear to foster teaching behaviours that would be universally regarded as bad. More specifically, here, these present and planned practices appear to have little, if anything, to do with assisting teachers to fulfil the kinds of duties that have just been described as components of the journey towards achieving teaching excellence, and appear to be more like road-blocks or obstacles on that journey.

3. Some recommendations for possible new responses of the university to its accountability for fostering teaching

A basic and straight-forward example could be given here of what a university or departmental administration could do, that was really serious in the interpretation of its own accountability for fostering university teaching. This would be to ensure that times and physical facilities were available, when and where students and teachers could meet in relaxed and informal ways, and talk, amongst other things, about the nature of teaching and problems of learning, and ways of improving both teaching and learning. This provision would help university teachers to fulfil their duties to learn about their teaching and to know and understand their students.

Another important but not particularly novel, and rather debatable suggestion for university policy to assist university teachers to discharge their teaching duties, raises the issue of possible conflict between teaching and research duties. The argument is (i) that teaching, loosely describable as the communication of knowledge, and research, describable as the advancement of knowledge, are two rather separate, disparate and probably mutually interfering activities, especially when undergraduate teaching is considered in relation to research, and (ii) that high quality teaching is not possible when obligations to research loom large, and vice versa. The suggestion then is that it would be in the best interests of excellence in both teaching and research, if each was to occur at a time when major effort was not required in the other. If the suggestion has merit, then provision of the requisite administrative procedures for this time-slotting to occur would become an aspect of the university's endeavour to be more accountable, by improving its accountability policies and strategies with respect to the fostering of both teaching and research. Perhaps the most significant matter here is that such a time-slotting arrangement might only suit some individuals, but that their needs in this regard should be met.

A more revolutionary and certainly more debatable proposition concerning the teaching-research interface, would be that teachers of undergraduate students engage only in teaching, while only research and no teaching would be conducted in Academies, with Graduate Schools at an intermediate point between the undergraduate, teaching-only university and the research-only Academy. There would be provision for academic staff to move in a flexible manner across these three levels. While this suggestion is not being promoted here, a university concerned to be more genuinely accountable for fostering university teaching and research might be actively reviewing this and kindred suggestions as a possible, but certainly not proven, way of fostering excellence in both teaching and research.

However, the major component of the assistance that would be offered by an administration mindful of its own accountability for instituting the most enlightened and effective accountability policies and strategies relating to university teaching, might take the following form:

(i) Pre-service and in-service teacher education opportunities for university teachers would be made available, in the form of programmes or courses leading to various kinds or levels of certification.

(ii) Just how and where such opportunities would be made available is by no means easy to say. *Perhaps* in each university a Centre for the Study of University Teaching might be set up. It would be staffed by the highest calibre full-time, part-time and visiting personnel, of proven scholarship in educational studies and/or of wide and substantial university teaching experience. The closest possible cooperation with particular university departments would be maintained by such a Centre but the Centre's authority and highest possible standing would be possible only if the Centre was independent of any form of control by the individual departments, or the central university administration.

(iii) Courses would include both practical and theoretical studies and also practical activities in university teaching.

(iv) Courses would be of a rigorous academic and professional standard. The courses could include but would transcend "this is how to do it" and "teaching tips" sessions, and would emphasise the use of educational theory by university teachers to enable the critical assessment of current teaching lore and to foster new and improved conceptualisation and practice in teaching.

(v) Courses would be conducted in a humanistic manner, consistent with the intellectual, professional and personal needs of the individual university teacher, and in a way that respects the autonomy and dignity of the teacher.

(vi) No particular models of teaching or theories of learning would be sold or promoted, and individual innovativeness and creativity of teachers would be encouraged.

(vii) In addition to the study of theories and models of teaching and learning, curriculum theory and development, testing and examining, university teachers would make substantial studies of student needs and development, as well as studies concerning the Idea of the University, i.e. studies of an historical, philosophical, sociological and comparative kind pertaining to the nature and function of the university and university education.

(viii) University teachers would be engaged in a cooperative enterprise in these teacher education studies, sharing ideas and problems with those in their own and other departments, and generally supporting one another.

(ix) The university teacher's study leave observations and experiences of teaching in other universities and countries could be incorporated into the structure and content of the teacher education studies that the teacher pursued from time to time (Andresen, Boud and Powell, 1981).

(x) The university teacher's involvement in teacher education courses, and satisfactory completion of them, would constitute evidence of commitment to the ideal of improving teaching and seeking excellence in it.

(xi) All university teachers engaging in a course and meeting its obligations would pass the course and no normative comparisons of performance in the course would be made, i.e. all tests would be criterion-referenced, and there would be no competeition amongst teachers, except as each competed against a standard of competence.

(xii) No other evidence relating to commitment to teaching or achievement in teaching, except for the satisfactory completion of appropriate courses, would be required.

(xiii) Evidence of satisfactory completion of appropriate courses, in addition to the fact of the university teacher's fulfilling his or her situational and contractual obligations to teach, would serve to indicate satisfactoriness in meeting accountability requirements relating to teaching.

(xiv) In addition to this aspect of teacher accountability, which is objectively describable and assessable, there would be operating, for all teachers, a subjective but potent form of

> self-assessment, linked to a notion of self-accountability, where the self would have been informed and enlightened by participation in the theoretical and practical studies in the teacher education courses. To aid in teacher self-assessment, the measurement and evaluation strategies currently employed in coercive accountability strategies relating to university teaching could profitably be employed, without, of course, the prescribed, coercive element. Particularly useful here would be the vast resources of methods and procedures available to help teachers obtain student evaluations of their teaching. (McKeachie, 1979; Cohen, 1980; Berk, 1979)

4. Some possible problems associated with suggested improvements in accountability policies and strategies relating to university teaching

It would be an inadequate account of suggested improvements in accountability policies and strategies relating to university teaching not to look at their anticipated consequences (Pace, 1971). The objectives of these assumed improvements are of course to raise the level of conceptualisation of teaching and teaching excellence and to obviate the negative and deleterious outcomes of coercive accountability strategies which, it is pertinent to note here, are also strategies based on the existence of a competitive culture in the academic profession. The main question now is, what are the consequences, in the competitive academic culture, of what might be termed non-coercive, non-competitive accountability strategies pertaining to teaching?

One major consequence appears to be the inevitability of the elevation of research to pre-eminence, if not in accountability strategies, then certainly in the reward structure. Another consequence is a possible fear that because of there being non-competitive accountability strategies pertaining to teaching, these strategies alone would down-grade the recognition of and status of teaching, and that this would be compounded by the simultaneous increase in dominance of research in the reward structure of the university. These matters deserve some discussion here.

Possible down-grading of teaching

Lack of conventional interpersonal competition in teaching, where competition of course is clearly classifiable as an extrinsic and not a high quality motivation, does not, it seems, mean a down-grading, non-recognition and non-reward of teaching. This down-grading, non-recognition and non-reward of teaching is in fact fostered and well achieved by the coercive, competitive, and ill-conceptualised accountability strategies currently used in relation to university teaching. The new and apparently enlightened non-competitive accountability strategy that has been suggested, where teacher education is incorporated into a systematic programme of pre-service and in-service education of university teachers, and where high standards are set and required in the programme, is equivalent to an up-grading, recognition and reward of teaching, for individual teachers, and in the university as a whole. The teaching profession within the academic profession would then be elevated to the stage where academic staff would have good reason to consider themselves to be professional teachers as well as professional historians, chemists, mathematicians, or the like (Imrie, 1981).

Apparent increase in the dominance of research in the reward structure

In a situation where all university teachers were assisted, regularly and systematically, in teacher education courses, to meet accountability requirements relating to teaching, virtually all teachers who took the courses seriously and worked hard in them would meet requirements, by achieving the required standards in criterion-referenced tests that would not issue in any competitive rankings of teachers. Major personnel or reward-type decisions in the university, relating to promotion and tenure, would then only be possible on the basis of achievement in research. This achievement in research would most usually be judged by research achievement in the university teacher's academic discipline, but it is worth nothing that this research achievement could also be in the study of teaching and learning issues and problems in an academic discipline, or in the wider university context.

The suggestion that non-coercive, non-competitive accountability policies and strategies pertaining to university teaching be adopted, was of course made in the interests of improving the status and quality of university teaching. It is obviously paradoxical and incongruous, now, that such a suggestion appears to give, to research, dominance and control in the reward structure. But if there has to be a reward structure there are some inescapable and strong arguments that research should, if not dominate, then feature strongly, in a university, particularly if there has been what might be termed prior and firm recognition of the place and status of teaching in accountability policies and procedures. In this latter case it is not really a matter of research dominating, because achievement of high standards in teaching, of the kind that have been outlined, would be a prerequisite qualification for entry into any competition based on research. To this extent that teaching achievement is a prerequisite, one could in fact say teaching dominates the accountability and reward structure.

In a university, which by definition is dedicated to both the communication and advancement of knowledge, teaching and research are each of fundamental importance, but research is the sine qua non of universities, as they are at present conceived, and it is generally believed that it is through research that university staff achieve excellence (Provins, 1979). The excellence of a university is judged by the quality of its research. These are facts of life, for the modern university and university teacher, although they are based on a value judgment made by the society which the university serves and by many in the university, too. Research, historically, has not always been pre-eminent, and perhaps neither will it be in the future, but it is hard to argue that it is not pre-eminent now.

If some basis for determining excellence of academics is required, excellence in research is certainly a firmer basis for norm-referenced or competitive assessments, than excellence in teaching, and is certainly measurable with some degree of confidence, compared with the essentially indefinable and unmeasurable quality of teaching excellence. Measurement of research achievement would also, it seems, be attended by far fewer, and les serious, dysfunctional and counter-productive consequences than occur when teaching is coercively "measured".

IV ACCOUNTABILITY, REWARD, COMPETITION, COERCION, AND THE IDEAL ACADEMIC SOCIETY

1. Interdependency of considerations of accountability, reward and competition

It is difficult to sustain any separate discussion of accountability, reward and competition in the competitive academic society that at present exists. Bases for accountability decisions are generally the same as those for reward decisions and accountability policies and strategies are hard to distinguish from reward policies and strategies. Striving for rewards in a competitive culture is assumed to raise levels of achievement, output, production or performance, in both quantity and quality, and the attainment of these higher levels would be tantamount to an individual (or for that matter a department or an institution), being judged as more successful in meeting accountability requirements.

2. Competition neither a virtue nor a necessity

Competition is the dynamic, it seems, of the whole academic enterprise. Without it, there is a fear that effort would be small, standards would be low, output would be low, and academics would achieve only the lowest ratings in any accountability kinds of assessments.

But competition is by no means a *virtue*. For one thing, and by definition, it places academics against each other, and minimises cooperative behaviours which alone can cope with many major problems in teaching and research. Also, it is really only because of competition as a fact of life in universities that coercive accountability and reward strategies can be countenanced by academics and allowed to exist; and much of this paper has been concerned with developing of new accountability policies and strategies, particularly for university teaching, which might avoid the dangerous and deleterious outcomes these coercive policies and strategies appear to have.

Neither is competition a *necessary* dynamic. In the new accountability policies and strategies that have been suggested for use in relation to university teaching, care has been taken to ensure that the highest standards of achievement in teaching would be required and also met. In this scheme competition is not the dynamic at all, unless it is self-competition, where the university teacher is striving continually to do a difficult task better, with the assistance with which he or she is provided.

3. Idealistic scenario

Ideally, in a community of scholars, accountability policies and strategies of the future will not involve any coercive elements and will not be based on competitiveness fostering a battle amongst academics for material reward. The dynamic of these new policies and strategies will be cooperation among academics seeking to achieve the highest standards in teaching and research, where these standards are clearly defined, and discernible by all in the university community and by the wider supporting society.

Ideally, amongst academics of the future, there will be no competition except self-competition, and for the academics there will be no special rewards and prizes, except the prize or reward that knowledge of a job well done, and recognition of the academic and wider community, constitute. Basically there is, it seems, something incongruous and somewhat tawdry, in talking of material prizes, rewards and competition, in relation to academic values and tasks in teaching and research in the university.

Further to this point, ideally in universities there should be a society of equals, where no promotion is available, and hence no promotion rivalries and competition and the attendant lack of cooperation and dissipation of energy.

Tenure is, it seems, absolutely essential, for reasons that are often stated and generally acknowledged. There should ideally be no rivalries and competition for tenure, either. Tenure should be available from the time of appointment, onward, assuming an extremely rigorous assessment of academic applicants is made at the time of initial appointment, that appropriate teacher education courses are regularly engaged in, and assuming basic situational and contractual obligations to research and teach are met.

Until such an idyllic, non-competitive university academic society emerges, academics will compete as teachers and compete as researchers, for prizes of promotion or tenure. Naturally, as far as teaching is concerned, the competing teachers will have to submit themselves to whatever assessment procedures the prize-giving administration ordains. Such teachers should, of course, be free to submit in this way to what, it has earlier been suggested, are coercive strategies, but under no circumstances should non-competing teachers have to submit to these coercive, mandatory and almost certainly damaging procedures.

Ideally, accountability policies and strategies relating to university teaching will change in ways suggested in this paper, so that excellence in teaching by all teachers will be facilitated, rewarded and guaranteed, and the quality of scholarship and community in the university will be enhanced and not endangered.

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THE IMPACT OF DECLINING PROMOTION OPPORTUNITIES

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INTRODUCTION

Given limited budgets, how can universities improve the opportunities for reward and intellectual growth? This paper addresses the problem by examining data on promotion opportunities in Australian universities.

The first part of the paper analyses the data by considering the following questions: do promotion opportunities vary across universities? What are the characteristics - discipline, sex, qualifications - of those who get promoted (and those who do not get promoted)?

The second part of the paper considers the implications of the analysis for the following policy questions: given limited budgets, how can universities increase promotion opportunities? How can universities increase mobility between universities? What are the implications for professional development?

PART I

Sources of Data

The data analysed in this paper have been collected as part of the FAUSA Database Project. This project, which has been jointly funded by Griffith University and the Federation of Australian University Staff Associations (FAUSA), involves the development of a national database to analyse staffing policies. This database has been developed at an individual level from data contained in the staff lists of University Calendars, the "Appointments, Promotions and Resignations Bulletin" published by FAUSA, and personal data, year of birth and tenure status collected from individual academics. At an aggregate level the database contains data published by the Commonwealth Tertiary Education Commission in its annual publication, Selected University Statistics, and data on age and tenure status collected at irregular intervals by CTEC.

One of the objectives of the database is to provide a framework for examining the effects of policies determined at a national level, for example tenure, on individual universities. Another objective is to examine the effect of policies determined within individual universities, for example promotions, on the university system as a whole. In some cases, policies determined nationally may not be in the best interests of individual universities. In other cases, policies determined within individual universities may not be in the best interests of the university system as a whole. In both cases staffing policies will have both positive and negative impacts on individual academics.

Overall, the project is designed to provide adequate information to assess the implications of staffing policies for individual academics, individual universities and the university system as a whole.

The database contains information on all academics listed in the 1980, 1981, 1982 and 1983 Calendars. At this stage the database contains information on promotions for the three periods between these calendars. In addition, for some universities - Adelaide, Flinders, Tasmania and Western Australia - the database contains details of the career path within the university for each academic. In addition, for each individual academic, data are available on department, sex, qualifications and, for some universities, year of birth.

What Measures of Promotion Rates are Available?

The first task is to obtain valid measures of promotion opportunities that can be compared across universities and across disciplines. In this section a number of measures are considered.

(a) "Raw" promotion rates

The simplest measure is to take the number of Lecturers promoted to Senior Lecturer as a percentage of the total number of Lecturers in a particular year. For any particular year there may be random fluctuations, especially in small universities. An improved measure of promotion rates is the average promotion rate over a period. These average promotion rates from Lecturer to Senior Lecturer for each Australian university are given in Table 1 for the three-year period 1980-1982. The "raw" promotion rates from Senior Lecturer to Reader/Associate Professor are also given in Table 1.

(b) Age-specific promotion rates

In comparing promotion opportunities across universities using "raw" promotion rates, universities with a younger age structure appear to have a relatively higher promotion rate. This may be due to the accumulation of a smaller number of staff at the top of the salary scales. To control for this factor promotion rates can be computed from individual data for each category for some universities. Again these promotion rates can be averaged over three years to even out random fluctuations. These age-specific promotion rates provide a better measure for comparing promotion opportunities across universities. This measure of promotion rates will be available for all universities when data collection on year of birth is completed.

(c) An alternative method for examining promotion opportunities is to take the group of academics who were Lecturers in a particular year and have remained at the same university and compute the proportion of these

TABLE 1

"Raw" Promotion Rates 1980-1982

University	Promotions to Senior Lecturer	Promotions to Reader/Associate Professor
Sydney	12.9	3.5
New South Wales	12.4	3.2
New England	6.5	2.2
Newcastle	9.5	2.0
Macquarie	15.2	2.6
Wollongong	7.8	2.9
Melbourne	4.9	1.5
Monash	11.1	1.6
La Trobe	11.1	1.6
Deakin	2.3	1.6
Queensland	6.8	4.2
James Cook	7.5	3.9
Griffith	2.5	4.4
Adelaide	12.9	2.5
Flinders	16.4	4.8
Western Australia	6.9	2.7
Murdoch	9.2	7.4
Tasmania	6.1	1.9
ANU (Faculties)	6.1	2.4

who have been promoted to Senior Lecturer. For a discussion on reward structure the group of greater interest may in fact be the group who have not been promoted during this period. Table 2 analyses the proportion of academics who were Lecturers in 1972 who have remained Lecturers. The analysis has been undertaken using 1972 as a base year to provide a ten-year period. However this analysis omits several of the newer universities so the analysis has been repeated in Table 3 using 1976 as the base year.

A similar analysis is undertaken in Tables 4 and 5 for staff remaining as Senior Lecturers over the ten-year and six-year periods.

TABLE 2

Lecturers in Same Position, 1972-1982

University	Lecturers in 1972 in same university 1982		Percentage not promoted		
	Males	Females	Males	Females	Total
Sydney	118	20	19	15	18
New South Wales	171	10	20	30	20
New England	42	2	19	50	20
Newcastle	37	2	30	50	31
Macquarie	71	16	14	31	17
Melbourne	97	20	29	35	30
Monash	81	6	9	33	10
La Trobe	29	5	24	40	26
Queensland	122	10	34	60	36
James Cook	26	4	23	25	23
Adelaide	92	13	6	15	8
Flinders	43	4	12	0	11
Western Australia	51	2	33	50	34
Tasmania	45	3	13	67	17

TABLE 3

Lecturers in Same Position, 1976-1982

University	Lecturers in 1976 in same university 1982		Percentage *not* promoted		
	Males	Females	Males	Females	Total
Sydney	206	36	37	25	26
New South Wales	187	24	31	33	31
New England	73	7	33	100	39
Newcastle	76	7	58	86	60
Macquarie	82	20	38	35	37
Wollongong	41	4	37	100	42
Melbourne	132	26	48	69	52
Monash	117	15	22	67	27
La Trobe	108	27	40	52	42
Queensland	172	27	52	63	53
James Cook	35	4	64	25	33
Griffith	17	1	47	100	50
Adelaide	102	18	18	22	18
Flinders	56	9	12	11	12
Western Australia	99	1	57	0	56
Murdoch	21	5	43	60	46
Tasmania	58	6	29	33	30
ANU (Faculties)	48	10	44	50	45

TABLE 4

Senior Lecturers in Same Position, 1972-1982

University	Senior Lecturers in 1972 in same university 1982		Percentage not promoted		
	Males	Females	Males	Females	Total
Sydney	162	17	58	76	60
New South Wales	106	1	51	0	59
New England	58	3	61	33	69
Newcastle	42	3	64	100	67
Macquarie	42	2	55	50	54
Melbourne	180	16	70	81	71
Monash	148	10	70	80	70
La Trobe	29	5	66	60	65
Queensland	125	9	55	56	55
James Cook	17	0	53	-	53
Adelaide	139	6	65	50	64
Flinders	49	2	59	100	61
Tasmania	43	2	63	50	62

TABLE 5

Senior Lecturers in Same Position, 1976-1982

University	Senior Lecturers in 1976 in same university 1982		Percentage not promoted		
	Males	Females	Males	Females	Total
Sydney	204	25	70	76	71
New South Wales	188	9	70	66	70
New England	84	4	82	75	82
Newcastle	64	5	83	80	83
Macquarie	109	11	84	91	84
Wollongong	15	2	53	100	59
Melbourne	226	26	84	92	85
Monash	205	16	87	94	88
La Trobe	97	5	81	100	82
Queensland	195	10	71	90	72
James Cook	28	2	71	100	73
Griffith	8	0	62	-	62
Adelaide	193	10	76	80	76
Flinders	80	5	78	80	78
Western Australia	146	5	81	100	82
Murdoch	8	1	25	100	33
Tasmania	66	2	77	100	78
ANU	76	7	89	71	78

Do Promotion Rates Vary between Universities?

Tables 2 to 5 show wide disparities in the promotion opportunities between universities. The next question to be asked is: why are there differences? One possible approach is to examine the promotion criteria for all universities and to compare these with Tables 2 to 5. An alternative approach is to examine differences in discipline-mix or quality of staff across universities. The only measure of quality of staff available within the database is qualifications which does not differentiate adequately, especially at the Senior Lecturer level.

In some cases, such as at Monash University there is an explicit quota on promotions to Associate Professors. In other cases, such as at Macquarie University the procedure for promotion to Associate Professor is made more stringent by including external referees on the promotion committee.

Do Promotion Opportunities Vary between Sexes?

In Table 6, promotion opportunities for each sex are analysed after controlling for the level of qualifications. For lecturers with doctorates, promotion opportunities for females are lower for all universities except Sydney, James Cook and Tasmania. For all universities, 23 per cent of males with doctorates who were Lecturers in 1976 are still Lecturers in 1972 while 35 per cent of females have remained in the same position. This is a significant difference at the .01 level.

For Lecturers without doctorates, promotion opportunities for females are lower for all universities except Macquarie, La Trobe, James Cook, Flinders and Murdoch. For all universities 60 per cent of the males have remained in the same position compared with 64 per cent of the females. This is not a significant difference at the .05 level.

In Table 7, promotion opportunities by sex are analysed after controlling for discipline. In this table there is little evidence that females have lower promotion opportunities than males. In fact, females in male-dominated areas appear to have a higher promotion rate than males in those fields.

The multivariate analysis of the data by sex, discipline and qualifications needs to be incorporated into a log-linear model to enable a detailed analysis of the various factors affecting promotion opportunities.

One way to equalise promotion opportunities across universities and to increase mobility is to advertise externally Senior Lectureships and Readerships/Associate Professorships. This requires a national policy since there is likely to be opposition from local staff associations on behalf of their members if universities institute a unilateral policy. Given the limited number of new positions currently available, there needs to be a means of creating new positions that would not be available otherwise. One possibility is to integrate a policy of externally advertised positions at higher levels with a national early retirement scheme. This may increase the costs to an early retirement scheme in that retiring staff would be replaced at a higher level than they may otherwise. However it would have the effect of freeing additional positions across the system.

TABLE 6

Lecturers in Same Position, 1976-1982

(Percentage of Staff not Promoted)

University	Doctorate		No doctorate	
	Males	Females	Males	Females
Sydney	43	25	20	25
New South Wales	18	20	51	56
Melbourne	34	58	54	80
Queensland	29	33	76	78
Adelaide	16	20	21	25
Newcastle	37	67	83	100
New England	24	100	46	100
Macquarie	17	17	73	62
Monash	17	40	33	82
La Trobe	19	23	0	67
James Cook	12	0	82	33
Griffith	38	100	75	100
Flinders	3	0	26	25
Murdoch	33	67	0	50
Tasmania	15	0	50	67
Total	23	35	60	64

TABLE 7

Lecturers in Same Position, 1976-1982

	Lecturers in 1976 in same university 1982		Percentage *not* promoted		
	Males	Females	Males	Females	Total
Agriculture	11	0	0	-	0
Architecture	58	0	53	-	53
Arts (Languages)	94	16	53	50	52
Arts (Other)	509	58	42	44	42
Dentistry	16	0	25	-	25
Economics	198	10	41	41	41
Education	152	12	51	68	54
Engineering	179	1	36	-	32
Law	52	4	27	33	28
Mathematical Science	152	2	45	71	47
Medicine	67	14	27	30	28
Physical Sciences	285	10	25	56	27
Veterinary Science	30	4	22	-	22

In 1982 the CTEC data on separations show that there were only 30 academics who moved from a tenured position at one university to a tenured position at another university. Any attempt to increase this number would improve the position of those academics who are currently frustrated within their current university.

PART II

In considering policy implications it may be useful to group staff subjectively into the following categories:

(a) Contented - those academics who perceive the top of the scale as the end of their career path but maintain their enthusiasm for academia.

(b) Aspiring - those academics who are actively seeking promotion and expect to succeed.

(c) Frustrated - those academics who are seeking promotion but have a low expectation of success.

(d) Disaffected - those academics who have applied unsuccessfully in the past and no longer apply.

The contented and the aspiring pose few problems for the reward structure and for faculty vitality in general. The third category, the frustrated, require careful study.

The greatest problem is the fourth group - the disaffected who may have lost enthusiasm for their department, their discipline or academia in general. For some staff, there could be an improvement in faculty vitality through a system of national exchanges which could allow for temporary or permanent exchanges between universities. For other staff who have lost enthusiasm for their discipline, a range of visiting fellowships within their university may provide the challenges and stimulation that an interdisciplinary university provides.

The data presented in this paper show that the reward structure is inequitable across universities. The underlying reasons for the inequities and an examination of quotas, both implicit and explicit, require further investigation.

With limited budgets there are trade-offs between improving the reward structure for existing staff, retaining non-tenured staff and opening up opportunities for potential academics. At Monash University, which has a relatively favourable reward structure for Lecturers but not for Senior Lecturers, the situation could be alleviated internally without affecting the future of non-tenured and potential academics. However, for other universities, allocating an increased proportion of the budget to improving the reward structure may be difficult.

For older staff early retirement or partial early retirement may provide the opportunity to pursue new interests or increase consultantcy work.

Overall, as more and more academic staff are "trapped" due to lack of mobility in the university system, every positive means available to increase faculty vitality should be tried. Removing barriers to promotion, increasing mobility in the system, facilitating exchanges and increasing professional expertise could all help to improve faculty morale.

PROMOTION: A CASE FOR DEVELOPMENT

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INTRODUCTION

The purpose of this paper is to promote discussion about issues of promotion of academic staff. The issues relate to policy, procedures and the perceptions of academic staff at Victoria University of Wellington (VUW). In general, if a special purpose committee has not been established in a university, it is recommended that there be a review of promotion policy and procedures to consider the establishment of an Academic Staffing Committee to assume responsiblity for such matters.

Recently, a national report has drawn attention to promotion with respect to the career development of academic staff. In New Zealand, a UGC Review Committee published a discussion paper on 'Academic Staffing' (UGC, 1981), which presumed that change is required within N.Z. universities and that staffing is one of the key issues. The paper discussed promotion and variations in rank distributions for the period 1970-81 (Figure 1).

In this paper, reference will be made to promotion of academic staff at Victoria University of Wellington and at other N.Z. universities. To provide a manageable focus, promotion to Reader has been selected for discussion of principles as well as details since

(a) the number of Readers since 1970 in this university can be reported conveniently in conjunction with the national variations reported in the UGC paper (Figure 1);

(b) the rank of Reader has national as well as international significance for the university community and therefore lends itself to comparative considerations;

(c) the rank of Reader usually indicates particular merit in research or scholarship with appropriate criteria; but promotion to Reader also includes consideration of teaching, administration and service;

(d) the significance of a quota (15 per cent) can also be considered.

Figure 1

Rank Distribution for all N.Z. Universities and for VUW

	1970		1975		1981	
	NZ	VUW	NZ	VUW	NZ	VUW
P	16.4	18.8	14.9	20.8	14.4	18.2
R/AP	12.3	15.3	11.8	10.4	12.8	10.3
SLE	32.9	5.6	41.7	12.1	49.9	13.8
SL		25.0		35.7		36.1
L	38.4	35.4	31.6	21.1	22.9	21.6

P - Professors; R/AP - Readers/Associate Professors; SL/SLE - Senior Lecturers/Extended (across bar); L - Lecturers

Sources: UGC Discussion Paper 4; VUW Budget Reports

Quota: (UGC) Readers (and Associate Professors) shall not exceed 15 per cent of established academic staff positions in any year in each university.

POLICY AND PRACTICE AT VUW

In general, promotion applications at VUW may be made by the applicant and/or the applicant's Chairman (or Head) of Department. These applications are considered for recommendation to the University Council by the Committee of Vice-Chancellor and Deans. There are six Deans (the number of Departments in each Faculty is shown in brackets): Architecture (1), Arts (13), Languages and Literature (7), Commerce and Administration (5), Science (11), Law (2). At this Committee, the Vice-Chancellor is usually accompanied by the Deputy Vice-Chancellor, the Pro-Vice-Chancellor (Secretary) and the Academic Pro-Vice-Chancellor, who also contribute to discussion.

It is the general policy of universities to recognise both past attainments and future potential by appointing and promoting staff to grades or ranks which, in New Zealand, comprise Lecturer (L), Senior Lecturer (SL), Senior Lecturer Extended (SLE), Reader/Associate Professor (R/AP), and Professor (P). Promotion results in an increase in salary. Merit is of particular importance for promotion to Reader (and, of course, for appointment to Professor). These promotions are not considered as career grade opportunities. Figure 1 shows VUW rank distributions.

Promotion to Reader

In general,

> "Salary and promotion are part of a social system in which salary is not so much important for what the money will buy as for what it symbolizes about what is valued by one's colleagues." (McKeachie, 1979, p. 17)

For merit-associated promotion to ranks such as Reader, many staff regard promotion not just as a salary increment but as an important and tangible indication of standing in the academic profession. Application for such professional recognition entails expectation that there will be serious and systematic appraisal of the applicant's professional development and experience.

Before discussing relevant criteria, it is worth considering some related aspects of promotion to Reader in N.Z. universities. Figure 2 gives some details of committee procedures used in other universities.

The UGC (1981) Review Committee noted that:

> "Promotion to Reader or Associate Professor is usually achieved only by staff who have made substantial original published contributions in their subject, are experienced teachers, and have standing in their subject and/or profession."
>
> "Promotion to Reader appears to have become more difficult to achieve in recent years. As well as the obvious point that there are many more Senior Lecturers vying for promotion, this may be partly attributable to the compression of the salary range at Reader level to a single point in 1977. This restructuring opened up a considerable salary margin between Senior Lecturers and Readers. As a consequence, universities may have become more selective in conferring this promotion." (p. 8)

Figure 2

Some Details of Promotion Arrangements in other Universities

University

A - Auckland
C - Canterbury
L - Lincoln
M - Massey
O - Otago
V - Victoria
W - Waikato

Committee Considerations	A	C	L	M	O	V	W
Specific Purpose Committee	✓	✓	✓		✓		✓
Non-professional membership	✓	✓					✓
AUT representation			✓		✓		
Individual can apply	✓	✓	✓		✓	✓	✓
Readership applications							
Provision for referees	✓	✓	✓		✓		✓
Provision for interview	✓						✓

At VUW, promotion to Reader involves four criteria, three of which could obscure the significance of merit. In summary, the criteria are:

(a) Academic - Scholarship and teaching (pedagogy would be more appropriate)

(b) Administrative - Chairman of Department

(c) Numerical quota - longer wait before receiving promotion

(d) Financial quota - not enough budget.

(a) Academic criteria

Merit is clearly associated with the concept of 'eminence' in the VUW statement. The *pro forma* invites submissions under the headings, 'Teaching', 'Research', 'Recent publications' and 'Any other relevant matters'. Academic criteria, therefore, relate to the academic profession's responsibility for (national and international) standards of teaching and research consistent with the concept of a university. Applications for promotion (to Reader) should provide information which would enable judgement to be made about the quality of teaching and research as well as the quantity.

Apart from the invitation to present a list of recent publications, there are no guidelines about the nature of evidence which may be used to identify merit. It is also somewhat invidious to compare publication lists across disciplines, e.g.,

> "Sir, in reply to the letter from the "astonished" and "tongue-in-cheek" Dr T.R. Griffiths, Department of Inorganic and Structural Chemistry, by all means let the allocation of the quinquennial grant 1972-77 be considered in the light of "Publications and Titles of Theses 1970-71", but of the 138 publications referred to by Dr Griffiths, it should be observed that upwards of 100 seem to be less than 10 pages each, whereas a third of the publications by the Law School staff were more than 20 times that length."[1]

Various studies of the relationship between publications and merit have used different weightings to take into account such considerations as:

(i) the type of publication, e.g., a book deemed equivalent to four journal papers, etc.;

(ii) the status of publication, e.g., refereed journal, national or international, conference proceedings, etc.;

(iii) the ranking of multiple authorship;

(iv) citation counts, etc.

Albeit, in a North American context, it has also been concluded that,

> "In a broad sense the pay structure shifts the faculty member's attention away from teaching and applied research to publication and administration in an increasingly strong fashion as one moves up the ladder of ranks." (McLaughlin, *et al.*, 1979).

Research or scholarship merit has forms which are not directly represented by publications. These include consultation, administration of research grants and supervision of graduate students. Since research is an activity of enquiry by specialists, peer appraisal is essential for judgement of quality; referee procedures which are acceptable for publication are just as acceptable for judging merit for promotion.

With respect to teaching, judgement of merit is usually a more contentious issue since student evaluation is an inevitable topic for discussion in this context. The AVCC (1981) Report accepts that the case has been made for utilising student opinion for the evaluation of teaching and recommends procedures which incorporate other sources of opinion such as previous student ratings, colleague evaluation, department chairman evaluation, and self-appraisal. Further, teaching is identified as having three other principal aspects in addition to classroom teaching or presentation, *viz.*, course content, course management, extra-curricular teaching.

Speculation at VUW that teaching almost always counts less than research (publications) for promotion (at any level) is shared by staff in many other universities.[2] However, this emphasis is appropriate for promotion to Reader, assuming that the person promoted is competent and motivated to teach well. In 1964, the Hale Committee commented that "it is on his achievement as a scholar rather than a teacher that his advancement in his profession will depend." And Dainton (1974), ten years later as UGC (U.K.) Chairman, regretted that,

> "There are many students whose motivation is weakened by the feeling that their teacher ranks his teaching of them lower in priority to the research which he hopes will lead to his promotion."

(b) Administrative criteria

Distinction in the discharge of duties as a Chairman of Department is taken into account. Chairmen of non-professorial rank are elected, and accept election, for a variety of reasons. It has been observed that such Chairmen are required to accept administrative responsibility for the Department but have no authority. Academic responsibility and authority rests with the Professors of subjects.

In some Departments at VUW, a Chairman might be given a 50 per cent reduction in teaching load to compensate for the increased time spent on administration. In overseas universities, it is the practice to provide an honorarium during the period of Chairmanship.

In contrast to academic criteria, equal opportunity to serve with distinction as Chairman of Department or, indeed, as Dean of Faculty, is not available to non-professorial staff seeking promotion to Reader.

The novice Chairman (sometimes eligible for promotion) is also involved in recommending other colleagues for promotion. Such Chairmen are not provided with systematic or specific training for this very important responsibility.

(c) A numerical quota

The quota is fifteen per cent of established academic staff positions. Figure 3 shows the proportions of Readers and Professors at VUW for the period 1970-82. The numbers in brackets indicate the 15 per cent equivalent number of Readers who could be appointed. But why 15 per cent? This quota dates back to a Cabinet decision in 1961 at the time of University devolution when new University Departments were being established and senior appointments were being made. It is now irrelevant.

Figure 3

Readers and Professors at VUW (1970-1982)

	READERS			PROFESSORS
YEAR	TOTAL	(15%) (EQUIV)	% (1)	% (1)
1970	44	(43)	15.3	18.8
1971	43	(47)	13.7	18.6
1972	35	(48)	10.9	20.4
1973	36	(50)	10.8	20.0
1974	32	(51)	9.4	20.1
1975	36	(52)	10.4	20.8
1976	30	(53)	8.6	19.6
1977	35	(54)	9.8	19.2
1978	39	(55)	10.7	18.6
1979	41	(56)	10.9	18.5
1980	40	(57)	10.4	18.3
1981	39	(57)	10.3	18.2
1982	40	(57)	10.5	18.7

Note: (1) % of staff of rank of Lecturer and above

Sources: UGC Discussion Paper 4; VUW Budget Reports

In 1979, the Vice-Chancellor at Auckland University gave offence when he told staff that the 15 per cent quota was not filled at Auckland because there were no staff of sufficient merit. After discussion between the Lecturers' Association and the Vice-Chancellor at VUW, it was not clear if the Vice-Chancellor, Dr Taylor, had the same opinion about VUW staff.

Figure 1 shows a comparison of rank distribution for all N.Z. universities and for VUW. Not only is the VUW proportion of Readers less than the anachronistic 15 per cent (cf. Figure 4), it is now substantially lower than the inclusive national average. The 'official' VUW counter to the criticism that there are too many Professors is to compare the combined proportions of Professors and Readers.

It has been argued that maintaining a proportion less than 15 per cent provides for a flexible appointments policy, whereby able staff can be attracted by appointment at Reader level, e.g., to establish a new Department or stimulate an existing Department. At VUW the record shows that:

(1) In 1982 there were 40 Readers, of whom 10 were Readers before 1970.

(2) In the period 1970-81, 44 staff were promoted to Reader.

(3) Of these 44 promotions, 16 retired/resigned, died, or were appointed as Professors.

(4) Only two Readers have been appointed in the period 1970-81.

It is evident from Figure 1 that, while the proportion of Readers is below the national average, the proportion of Professors is above the national average by a greater amount. Flexibility (and financial saving) could be obtained by reducing the number of Chairs.

(d) A financial quota

The Vice-Chancellor, Dr Taylor, referred to the implications, for promotion applications, of the financing of annual promotions. It is relevant to note that, in 1981, the UGC introduced funding by a block grant (indexed for salaries) which was no longer related to the number of established positions of any rank. This also has implications for the lack of rationale of the 15 per cent quota.

At VUW, in his introduction to the Budget for 1981, the Vice-Chancellor, Dr Taylor, acknowledged publicly for the first time the implications of adverse economic conditions:

> "The financing of annual promotions, which represent a recurring expenditure commitment, will become an increasing problem as the quinquennium progresses."
>
> "It might therefore eventuate that, if it proves unduly difficult to provide the funds necessary to sustain existing practices, some staff members may be required to wait longer on the scale maxima before receiving promotion."[3]

If staff apply for and merit promotion, and there is not enough money to pay the increased salaries, then that is a specific management problem for which there are solutions other than advising a member of staff that an application has been unsuccessful.

Figure 4

Promotion to Reader - N.Z. Universities and VUW (1970-1980)

Year	N.Z. Universities		Victoria University	
	Number Promoted N	Percentage Promoted % (1)	Number Promoted	Percentage (of N) %
1970	25	37	4	16.0
1971	35	49	3	8.6
1972	24	38	1	4.2
1973	17	25	4	23.5
1974	26	36	5	19.2
1975	24	27	3	12.5
1976	31	32	5	16.1
1977	28	28	3	10.7
1978	35	27	5	14.3
1979	31	23	4	12.9
1980	24	20	1	4.2

Note: (1) Percentage promoted of those applying

Sources: UGC Discussion Paper 4

PERCEPTIONS OF STAFF

Over a period of three years, the perceptions of staff discussed in this paper have been gathered by interview and seminar discussion. In some cases, the member of staff had been unsuccessful with an application for promotion to a higher rank or across a bar. While each person's perception is valid for that individual, this does not imply that it is 'correct'. It is, however, not possible to determine the difference.

Certain examples of staff perception will be described briefly but with due regard for the confidentiality involved in obtaining such information. Inevitably, therefore, this section is more subjective than the previous sections.

Expectations

When staff contemplate promotion for the first time, they expect 'it' to be fair. Indeed, both the former Vice-Chancellor, Dr Taylor, and the current Vice-Chancellor, Dr Axford, have given public assurances that it is fair. For staff, 'it' is usually a vague notion which includes equally vague concepts of the Committee, the criteria, and the procedures. In discussion, staff certainly expect that a committee of experienced staff will give serious and systematic consideration to the achievement and potential of each individual applicant, and that rational decisions will be made on the basis of merit and reliable information.

The expectation therefore would include:

(a) specific criteria and standards

(b) guidelines for submitting information relevant to the criteria and from appropriate sources

(c) personal responsibility for making the submission

(d) objective procedures for decision making

(e) guidance to unsuccessful candidates about areas in which improvement is needed, and

(f) opportunity to discuss these matters with the appropriate Dean.

Experiences

The experiences of staff are varied, but there would be consensus for the following beliefs about factors which contribute to the success of an application for promotion (to any rank).

- Success depends on the HoD/CoD carrying 'weight'. (This relates to successful advocacy reflected in accelerated promotion, e.g., five increments within a scale or promotion to Reader from Lecturer or Senior Lecturer. Clearly, non-professorial Chairmen, elected for the first time, will not carry as much 'weight' as more experienced and senior colleagues.)

- Success depends on support from the Dean when a consensus decision is made by the Committee. (This is linked with the advocacy consideration but also reflects the somewhat cynical speculation of staff that 'horse-trading' takes place between Departments and across Faculties.)

- Success depends on whether it is your turn (in the Department). (This is another variable factor that depends on the size of the Department, the relationship between an elected non-professorial CoD and the Professor(s), and the manner in which ranking is decided internally.)

- Success depends on whether you have waited long enough at the top. (This time-serving factor is significantly different from 'whether it is your turn'. When the Senior Lecturer (Extended) scale was collapsed (1976) from three points to a single point, it was then 'expected' that staff would wait for two to three years before being moved across the (same) merit bar. In general, individual members of staff must have completed, by the first of June (in a particular year) at least two years of service at their current grade to be eligible to apply for promotion.)

- Success depends on how old you are. (This factor has been mentioned by unsuccessful staff too often to be disregarded. Presumably it is a quantitative notion used because of difficulty in applying more relevant criteria. It has been experienced differently as 'too old' and as 'too young'.)

- Success depends on the 'needs' of a particular person or Department. (This perception, like the previous ones, derives from comments to unsuccessful candidates by HoD/CoD/ Professors, and is a particular criterion for ranking within a Department. Personal 'needs' include domestic circumstances, while departmental needs are reflected in market pressures of 'supply and demand' for academic staff in certain disciplines.)

- Success depends on research/publications. (This factor at least has correspondence with the concept of merit, but inspection of the Vice-Chancellor's Reports (which list staff publications) causes some disquiet about the criteria used to assess the quality of scholarly publications. Unsuccessful applicants do compare their publications with the publications of successful colleagues prior to promotion (to Reader, say), and also, after promotion. In one particular case of almost all things being unequal, an unsuccessful applicant had more university teaching experience, equivalent academic qualifications, better evidence of teaching effectiveness, more professional service outside the University, and certainly more publications than a colleague in the same Department, who was successful.)

- Success depends on visibility. (This relates to the explicit statement, 'Distinction in the discharge of duties as Chairman of Department is taken into account' in the VUW criteria for promotion to Reader. In general, it refers to Committee or Faculty visibility and manifests itself in advice to unsuccessful applicants such as, 'You should be more active on University committees'.)

Only the last two 'factors' could be considered to be consistent with published criteria. Since many staff do not have access to reliable information about criteria and procedures which affect them professionally, the overall effect is that many staff perceive the system cynically in terms of paternalism rather than professionalism.

CONCLUDING COMMENTS

For an individual member of staff, application for promotion involves obtaining the support of an elected Chairman of Department in the form of a recommendation. This recommendation conveys 'impressionistic' statements about the professional work of the applicant to a group of senior academics who then examine the 'evidence' and decide whether to make a recommendation to Council for promotion.

Promotion is important to staff, who stress that it seems to be the only acknowledgment, by the institution, of quality and quantity of work by academic staff. Unsuccessful promotion candidates are often not specifically or significantly concerned about missing a promotion-related rise in salary. The most significant emotion seems to be resentment that, as men and women of professional standing, they have been treated unprofessionally.

> "The "public" system of rewards - pay and promotion - is one thing, but the "private" dimensions of merit - e.g., self-esteem - are equally powerful for sustaining the quality of instruction." (Ericksen, 1978)

This paper has reviewed issues of promotion with reference to Readerships and related policy, procedure, and perceptions of academic staff at VUW. On the basis that it is possible to learn from the experiences of others, information has been obtained from other N.Z. universities.

For universities, such as VUW, without a special purpose Promotions Committee, it is recommended that there be a comprehensive review of promotion policy and procedures with reference to the following considerations:

1. A specialist committee of the Professorial Board, such as an Academic Staffing Committee, should be established with terms of reference which might include appointment, probation and promotion.

2. The membership of such a committee should include elected representatives of the Professorial Board, elected members of the Faculties (with due provision for non-professorial representation) and *ex officio* representatives of the Victoria University Branch of the AUTNZ.

3. Procedures for promotion should provide for individual applications with specific criteria and guidelines about the sources and nature of the information required. For senior rank promotions (to Reader, for example) referee procedures should be used and provision made for interviews.
   One implication of using more detailed and systematic procedures is the time involved, and the annual promotions exercise would need to start at mid-year. This would seem to be justifiable in view of the important professional consequences for the individual, and of monetary considerations for the institution.

4. Statements from the Chairman of a Department, appended to each application, should reflect full and open consultation with the staff of the Department.

5. The outcome of an application should be conveyed to the individual with brief statements identifying reasons for the decision, whether it is affirmative or negative. (In 1979, in response to a suggestion from the Lecturers' Association, the Vice-Chancellor, Dr Taylor, agreed that it would be appropriate for a brief citation for staff promoted to Reader, to appear in *News VUW*.)

6. Any individual should have the right to discuss the outcome of an application for promotion with the Convener of the Committee.

7. In making recommendations about promotion, the Committee should identify merit-related factors as distinct from quota considerations. If staff merit promotion, that can be decided separately from the financial implications of increased salaries.

Much has been written about these considerations in the literature of higher education with reference to the academic profession. A review provides an opportunity to appraise experiences in other universities and, by involving Faculties and other representative bodies of staff, an opportunity for professional development within the University.

While this discussion paper has used promotion to the rank of Reader to focus on particular issues, the general principles apply to all aspects of promotion and probation when judgements are made about the abilities and achievements of individual academic staff.

> "If university authorities expect academics and the community at large to have confidence in the promotion procedure, they must be equally explicit in describing the procedures they use. Brief statements defending the integrity and conscientiousness of the decision-makers are no longer significant." (Prosser, 1980)

NOTES

1. Letter to the Editor, The University of Leeds Reporter, 31, 14 March 1973.

2. Editorial, Teaching News, Newsletter of the Educational Development Committee, University of Birmingham, 16 June 1982.

3. VUW Budget Report, 1980.

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CHAPTER 3

STAFF PERCEPTION OF INSTITUTIONAL OPPORTUNITIES FOR REWARD AND GROWTH

Boud and de Rome studied academics' perceptions of the promotion system in a large Australian university. The study demonstrates that a discrepancy exists between what staff think ought to be important in promotion decisions and what they perceive actually is important. As promotion is the main means of formal reward in universities, these findings must have consequences for staff morale and staff activities. Particularly noticeable is the consistent undervaluing of teaching (as perceived by staff). One cannot help but wonder if either performance standards as requested by Stone and Silverthorne or 'getting teaching out of the way' by making excellence in teaching a pre-requisite for promotion (Genn) would be preferable to the continuing undervaluing of teaching.

A study by Soliman and others of the University of New England, "Staff perceptions of promotion criteria", came to similar conclusions as did the study by Boud and de Rome. As both studies refer to an earlier study by Genn the extent of the consensus that academics want teaching more valued than it is, is considerable. Soliman and his co-authors also address the general question of how teaching might be valued in a research oriented environment.

Parer and Croker concern themselves with a sub-group of tertiary teachers, namely the distance educators. Their paper, "Institutional support and research for academic staff who teach students in external studies", describes a proposal for a research project which arose out of the need for more institutional recognition of the special functions and needs which tertiary teachers in distance education have. In particular the authors feel that neither satisfactory promotion opportunities nor opportunities for professional development exist for distance educators.

The last paper in this chapter by Nutting and Rouessart, "Institutional rewards and personal growth: women in educational administration", addresses the reward and growth experiences of another sub-group of staff in education - women. As pointed out by Payne, women tertiary teachers in some disciplines and some universities are less likely to be promoted. This study shows how women educational administrators in the State education system changed when promoted. The interrelation of personal and institutional needs, values and parameters is shown. While the subjects in this study are women in organisations, women tertiary teachers might have similar anxieties and needs. Their reward and growth opportunities also warrant a study.

WHAT COUNTS?: ACADEMICS' PERCEPTIONS OF THE PROMOTIONS SYSTEM

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INTRODUCTION

Academics are expected to perform many roles in teaching, research, administration and in service to the community. While certain formal obligations are generally set down (e.g. with regard to teaching), the extent to which an academic becomes involved in the demands of the other roles is a matter of individual choice. This choice will be influenced by many factors, including consideration of the intrinsic and extrinsic rewards of such involvement. The formal reward system of the institution as manifest by the promotion and advancement of staff, is one of the major extrinsic factors. It is also one of the ways in which the university signals to staff what it, as an institution, regards as important. Most published statements of university goals give similar emphasis to the two main areas of teaching and research.

This paper focuses on the perceptions of academic staff of the promotions system at one major Australian university, and discusses the implications of the findings in terms of university policies and the institutional environment.

METHOD

One in four of all academic staff in the grades lecturer, senior lecturer, associate professor and professor were surveyed as part of a wider study on staff development at a large Australian university in 1982. The response rate to this survey was 58%, and the 160 respondents were reasonably representative of the academic staff in general with respect to their distribution by status and faculty.

The questionnaire covered many aspects of academic life and matters related to staff development, and included questions about the promotion system. Respondents were asked to rate the importance of nine items as criteria in promotions decisions. There were three groups of items: those referring to teaching - Teaching Performance, Total Effectiveness With Students and Student Evaluations; those referring to research - Publications, Ability to Secure Research Grants and Research Accomplished; and, finally a group of other types of criteria; Academic Qualifications, Committee and Other Administrative Services and Statements of Other Staff. On a five point scale from **Extremely High Importance** to **Of No Importance**, respondents were asked to indicate first how important such criteria ought to be, and **secondly** how important they thought such criteria were in fact at this institution. All but one of these items were selected from those in Genn's 1973 survey of Australian University teachers (Genn, 1980, 1982).

RESULTS

The data were examined in order to establish what criteria academics felt ought to be important in promotions decisions, and to determine whether this was congruent with staff perceptions of the relative values assigned to such criteria in promotions decisions in the university. Table 1 presents these results in terms of the combined percentages of respondents who rated items as being either of "High" or Extremely High" importance and compares them to Genn's findings.

TABLE 1. Percentage of respondents indicating "High" or "Extremely High" importance for each item as it "ought to be" (Ideal) and as it "in fact is" (Real).

	1982		Genn, 1973	
	Ideal %	Real %	Ideal %	Real %
Teaching performance	87	6	93	12
Total effectiveness in working with students	76	5	86	11
Student evaluations	23	4	33	3
Research accomplished	90	83	69	90
Publications	71	97	52	93
Ability to secure research grants	21	77	14	59
Academic qualifications	39	57	-	-
Committee and other administrative service	20	33	23	47
Statements of other staff	14	36	17	47

The vast majority of staff felt that teaching performance and effectiveness in working with students should be of high importance in promotions decisions. However, their responses (see Fig 1,2) indicated that they felt that these criteria were seriously undervalued in practice. Further, while it was considered that student evaluations should be of some value, very few thought that they were at present recognised as important criteria (see Fig 3).

In terms of research activities it was apparent that while an overwhelming majority agreed that research accomplished is and should be highly valued (Fig 5), many staff felt that publications and especially the ability to secure research grants were in fact, given higher priority in promotions decisions than they merited (Fig 4,6).

There was less dissatisfaction about recognition for committee and other administrative service (Fig 8) but there appeared to be concern that academic qualifications and statements by other staff members were overvalued (see Fig 7,9).

In order to test whether the differences between the ideal and reality on each of our criteria were significant, t-tests were used. As we could not safely assume independence between items we corrected our critical value for t using the Bonferroni procedure (Harris, 1975). With the exception of **Research Accomplished** and **Committee and other Administrative Services**, all items were significant at the .05 level.

One of the other questions in the survey asked staff where their own interests lay with regard to teaching and research (see Table 2).

TABLE 2. Respondents' interests with regard to teaching and research (n).

Mainly research	Leaning to research	Equally in both	Leaning to teaching	Mainly teaching
8%	39%	34%	15%	4%
(13)	(61)	(54)	(24)	(6)
47%		34%	19%	

The majority said they were interested in both with only 8% saying they were mainly interested in research and 4% saying they were mainly interested in teaching. However, 39% reported a leaning to research while only 15% leaning to teaching (see Table 2).

We decided to use this information to see whether peoples' perceptions of the promotions system were related to their own interest leanings. To do this we grouped respondents according to whether they were more interested in teaching or research, or equally interested in both.

All three groups agreed that all the criteria related to teaching were seriously undervalued (see Fig 10,11,12). There was also general agreement that publications were overvalued (see Fig 13,14,15), although those whose interests lay in the direction of teaching were likely to have identified a significantly greater discrepancy between reality and the ideal with regard to the value of publications. The ability to secure research grants was also generally agreed to be overvalued by all groups. The only significant point of disagreement between these groups concerned research accomplished. People with a declared interest in research tended to feel that research acomplished was undervalued, whereas those interested in both teaching and research and particularly those with teaching interests tended to see it as overvalued.

These results seem to suggest two things. Firstly and overwhelmingly, staff believe that teaching is not regarded as an important consideration in promotions decisions. Secondly, staff feel that promotions decisions are based on the more public manifestations of academic work. That is, publications and the ability to secure research grants were disproportionately influential in comparison to the research actually accomplished. This public aspect of the criteria was also evident in the view that statements by other staff and academic qualifications were overvalued.

The findings of this survey are very similar to those of Genn's survey (Genn, 1982) despite the fact that Genn's data was obtained nine years ago from a much larger (n=796) and wider survey (Staff ranging from tutors to professors were surveyed in 6 universities). One might have expected there to have been a change since Genn's survey, particularly following the Reports of the Williams' Committee into Education and Training (1979) and the AVCC Working Party on Staff Development (1981), both of which emphasised the importance of teaching in universities. Instead these results suggest that belief in an imbalance between the value of teaching and research is a fairly entrenched feature of Australian university life. If this is the case then these results have quite serious implications.

DISCUSSION

Even if we accept that our data do provide a reasonably valid view of staff perceptions of the promotion system, it does not necessarily mean that the **in fact** ratings are an accurate reflection of actual practice. If they are an accurate reflection, then there are important questions to address about promotions criteria in universities.

> Why are Publications, Research accomplished and Ability to secure research grants given absolute priority over Teaching performance, Total effectiveness with students and Student evaluations?
>
> Do these represent the de facto values of the university or is the promotion system incongruent with the goals of the university?

If it is the latter, then it is necessary for universities to act to right the situation, to make the criteria for promotion compatible with their basic goals. If the former then it is likely that a number of people both from within and outside the universities will want to question and challenge these priorities.

Of course, the perceptions of staff may not be an accurate reflection of the university's practice. Nevertheless, if substantial numbers, as we have shown, believe that research criteria are more important than teaching criteria in promotions decisions, it is likely to influence their behaviour. They may give greater priority to their research activities and they may regard their teaching as less important to them in terms of their professional advancement. We are not suggesting any mechanistic link between ease of access to rewards and people's behaviour, there are many enthusiastic and dedicated teachers in Australian universities. However, it cannot be healthy for an institution to allow its members to be so confused about its values, nor for them to perceive those values as being so discrepant from what they feel they should be. In the absence of clear statements about promotional criteria, young academics are dependent upon the advice and opinions of their peers, upon folklore and on observing the pattern of who does and does not get promoted. Whether or not staff perceptions about the relative value of research and teaching in promotional decisions are accurate, people concerned to advance their careers are likely to be influenced by such perceptions when deciding how to direct their energies.

It is not a simple matter for universities to place greater emphasis on those criteria which staff would regard as the most important in the area of teaching. There are many norms of behaviour and institutional practices which inhibit staff both in being aware of the nature of their colleagues' teaching and of giving an account of their own teaching performance. The outcomes of teaching are much more private that those of research and they effect two very different groups with very different degrees of influence over the institution. Teaching is designed to benefit students, but students are not always in the best position to appreciate good teaching when they are receiving it. When they are able to reflect fully on the quality of teaching, they are graduates, generally no longer present in the institution, and in the Australian context, having very little contact with it. Research on the other hand is directed towards ones peers, it appears in journals which they read and it is funded by bodies whose standards are in general known within the academic community. Relatively, research is a more public activity and its rewards are more easily seen.

Are there any intrinsic reasons why the same could not apply to teaching? It could be made more public with the publication of student evaluations, surveys of alumni, prizes for teaching innovations and the like. This had been achieved in the USA and Canada, but these changes were brought about through the initiatives of concerned staff (Knapper et al, 1977; Shore et al, 1980). In Australia the situation appears to be a little different. Although staff overwhelmingly report that teaching is a highly important criterion which is seriously undervalued in promotion decisions, with few exceptions (eg. Prosser, 1980), there are no signs that they are concerned enough to take any action to remedy this situation.

It could be argued that some of the measures - student surveys, teaching prizes - which might be used are alien to the British-Australian academic culture, but this does not explain why alternative measures, such as peer review and the use of review committees to assess evidence on teaching have not been pursued. Perhaps it is that the academic decision makers, although concerned in general about this problem are too immersed in the present system to be able to conceive of such changes. If change is not to come from within, it may be that external groups will seek to influence universities to enhance the status of teaching.

No matter where the impetus comes from the critical problem is how to measure teaching performance. So far at our own institution the response to the findings of this survey has been to propose both the clarification of promotional criteria and the establishment of a panel to review evidence on teaching. So far as administrative mechanisms are concerned this is perhaps as much as can be expected at present. However, there needs to be developed a greater diversity of methods which can be used to provide the evidence to be supplied to committees. Teaching involves a great deal more than face-to-face contact with students and particular attention needs to be given to ways of assessing the full range of teaching accomplishments in such a way that the results can be as readily appreciated by committees as lists of publications and research grants awarded.

Fig. 1

TEACHING PERFORMANCE
1982

	1	2	3	4	5
% IDEAL	35	53	11	1	—
% REAL	1	5	23	54	17

IDEAL - - - - -
REAL ———

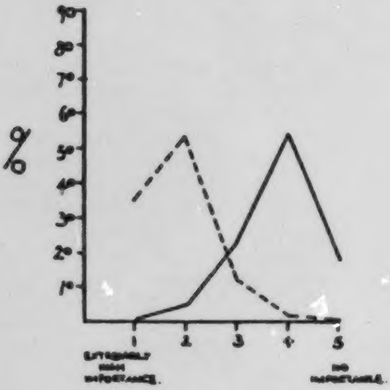


Fig. 2

EFFECTIVENESS IN DEALING WITH STUDENTS.
1982

	1	2	3	4	5
% IDEAL	23	53	22	3	—
% REAL	—	6	21	44	30

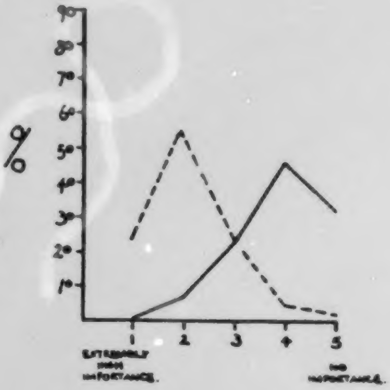
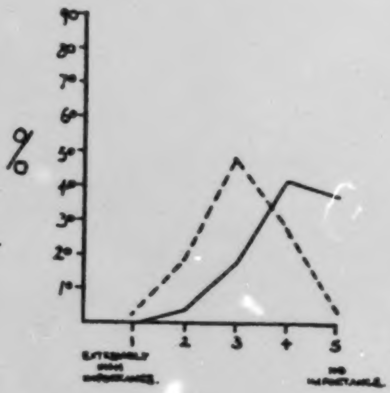


Fig. 3

STUDENT EVALUATIONS
1982

	1	2	3	4	5
% IDEAL	3	19	47	27	4
% REAL	—	4	18	41	37



Figs. 1-9

'Ideal' and 'real' ratings of the importance of each criterion - 1982

Fig. 4

PUBLICATIONS 1982

	1	2	3	4	5
%IDEAL	17	54	27	5	—
%REAL	75	22	3	—	—

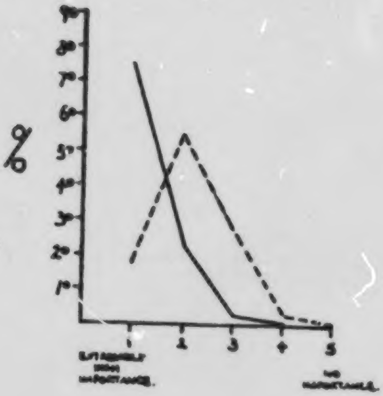


Fig. 5

RESEARCH ACCOMPLISHED 1982

	1	2	3	4	5
%IDEAL	33	57	10	1	—
%REAL	46	37	13	3	—

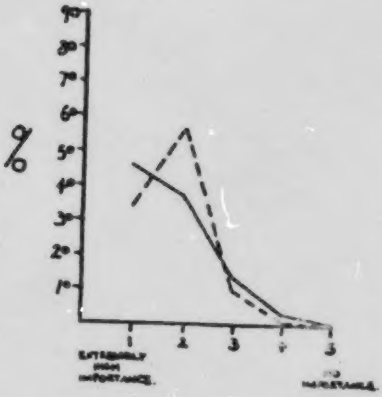
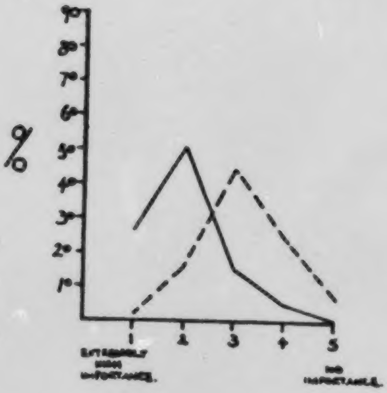


Fig. 6

ABILITY TO GET RESEARCH GRANTS 1982

	1	2	3	4	5
%IDEAL	3	16	45	8	25
%REAL	27	51	16	6	1



Figs. 1-9

'Ideal' and 'real' ratings of the importance of each criterion - 1982

Fig. 7

ACADEMIC QUALIFICATIONS
1982

	1	2	3	4	5
% IDEAL	8	31	37	18	6
% REAL	24	33	34	10	—

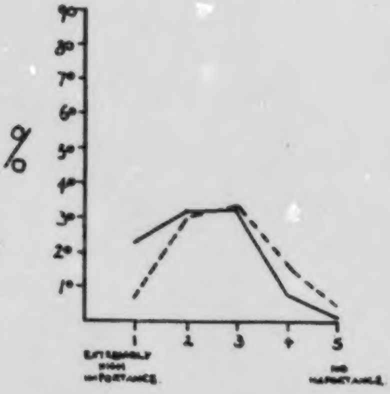


Fig. 8

COMMITTEE AND OTHER
ADMINISTRATIVE SERVICES
1982

	1	2	3	4	5
% IDEAL	—	20	52	24	4
% REAL	7	26	43	19	3

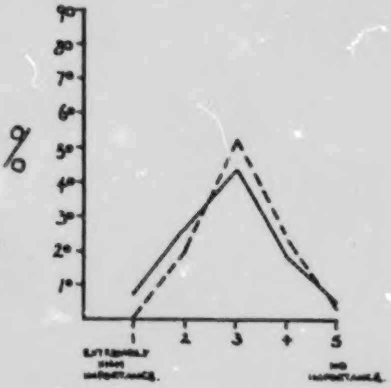
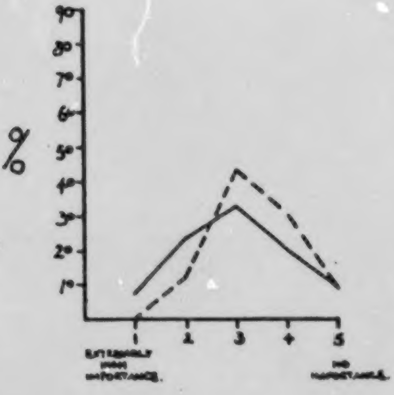


Fig. 9

STATEMENTS OF OTHER STAFF
1982

	1	2	3	4	5
% IDEAL	1	13	45	31	10
% REAL	9	26	34	21	10



Figs. 1-9

'Ideal' and 'real' ratings of the importance of each criterion - 1982

Fig. 10

TEACHING PERFORMANCE
BY INTEREST
1982
RESEARCH.

	1	2	3	4	5
% IDEAL	23	57	14	3	—
% REAL	3	4	23	55	15

IDEAL - - - - -
REAL ———

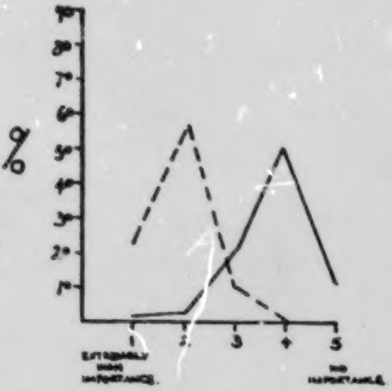


Fig. 11

TEACHING PERFORMANCE
BY INTEREST
1982 EQUAL INTEREST

	1	2	3	4	5
% IDEAL	47	42	11	—	—
% REAL	—	6	28	49	18

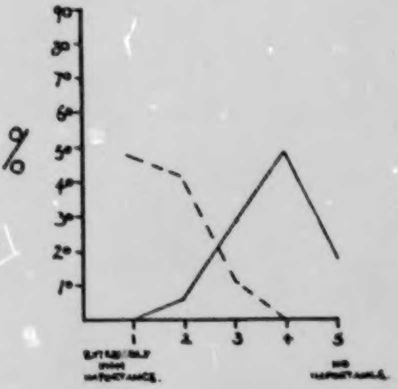
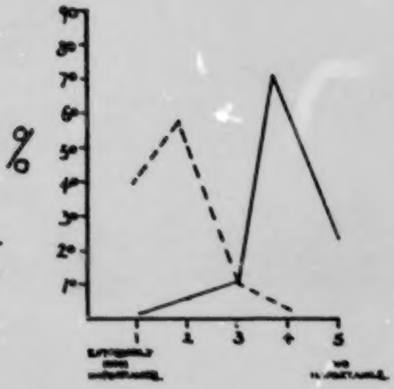


Fig. 12

TEACHING PERFORMANCE
BY INTEREST
1982
TEACHING

	1	2	3	4	5
% IDEAL	38	55	7	—	—
% REAL	—	4	8	68	20



Figs. 10-15

'Ideal' and 'real' ratings of the importance of each criterion by interest preference

Fig. 13

PUBLICATIONS BY INTEREST
1982
RESEARCH

	1	2	3	4	5
% IDEAL	22	60	15	3	—
% REAL	71	25	4	—	—

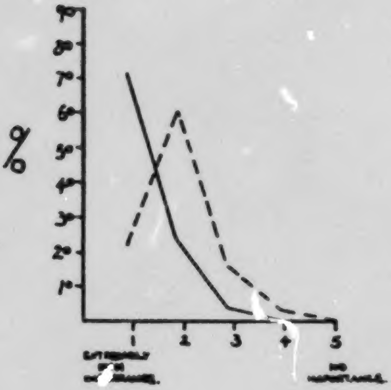


Fig. 14

PUBLICATIONS BY INTEREST
1982
EQUAL INTEREST

	1	2	3	4	5
% IDEAL	18	33	29	—	—
% REAL	80	18	2	—	—

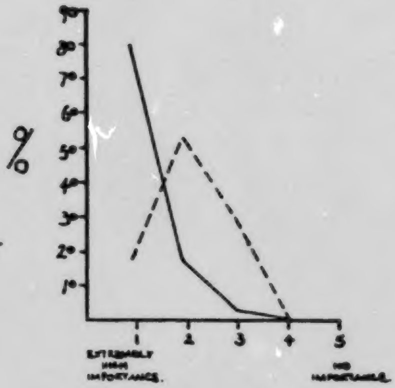
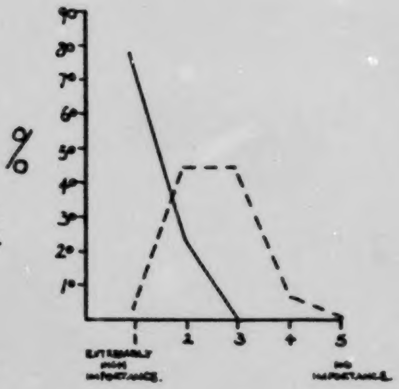


Fig. 15

PUBLICATIONS BY INTEREST
1982
TEACHING

	1	2	3	4	5
% IDEAL	3	45	45	7	—
% REAL	76	24	—	—	—



Figs. 10-15

'Ideal' and 'real' ratings of the importance of each criterion by interest preference

Fig. 16

TEACHING PERFORMANCE GENN

	1	2	3	4	5
% IDEAL	53	40	7	—	—
% REAL	4	8	34	40	14

IDEAL - - - - -
REAL ———

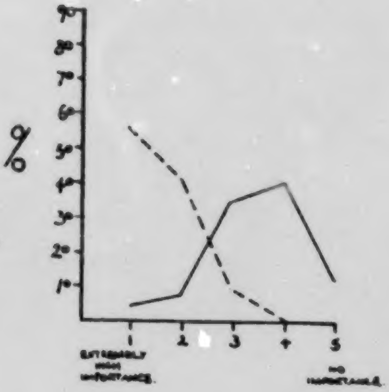
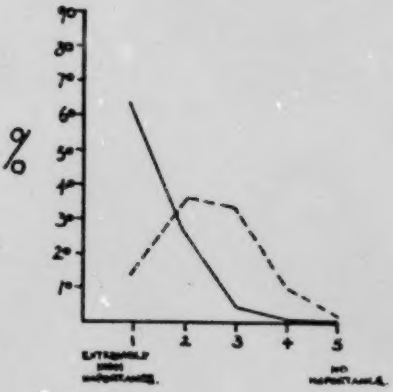


Fig. 17

PUBLICATIONS GENN

	1	2	3	4	5
% IDEAL	14	38	36	10	2
% REAL	63	29	5	1	1



Figs. 16, 17

'Ideal' and 'real' ratings of the importance of Teaching Performance and Publications - Genn 1973 data

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STAFF PERCEPTIONS OF PROMOTION CRITERIA

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SUMMARY

Respondents to the survey 'Staff Perceptions of Promotion Criteria' made it quite clear that, in their view, a considerable disparity exists between the importance that should be attached to good teaching as a promotion criterion and the importance that is actually attached to it. The criteria by which staff are appointed are of crucial importance. Such criteria not only determine the kind of staff employed, but also influence greatly the direction which staff activities take. If teaching is perceived as being virtually ignored as a promotion criterion, teaching will also tend to be ignored when staff determine the time they allocate to their teaching activities.

The majority of staff perceived that overwhelming importance is attached to research and publications as a promotion criterion. Yet, most respondents were of the opinion that recognition should be given to a much wider range of activities. Indeed, 79% of respondents considered that "teaching effectiveness" should be regarded as being a very, even extremely, important promotion criterion, though only 12% of the respondents considered it was regarded in this way. Administration and voluntary service, both to the university and the wider community, together with student advising, were also considered to be essential tasks not given adequate recognition in promotion. Student advising, in particular, was regarded as a criterion which should be given far greater weighting. The only other criterion, apart from research and publications, which respondents considered should be given less weight was seniority. Overall, respondents' perceptions of the reward structure of the institution were such as to suggest that this structure serves not to encourage, but to discourage, any interest in or commitment to improvement in teaching.

INTRODUCTION

It is well known that academic staff members in universities are facing "hard times". They are overworked, promotion criteria are not clear, evaluation of their performance is frustrating and alienating. On one hand, they are primarily appointed to satisfy teaching needs, and on the other they are mainly evaluated and promoted on the basis of their research performance and publication record. This situation has created a dilemma in relation to academic and career development. Since teaching and research compete for time, and if teaching is not being rewarded, it tends to be ignored even though there is a general recognition that it is a very important component of the academic function. This situaiton will undoubtedly result in the eventual lowering of standards for teaching and consequent decline in the standards of university graduates. It has been suggested, however, that the lack of vitality in academia is a function of promotion difficulty (Staman, 1981) and an unjust reward system.

In this paper we will be concerned with the criteria perceived by a sample of university academics, to be *actually* used in assessing promotion and the criteria they would *ideally* like to be used. The data obtained by our survey reveals a considerable disparity between the perceived actual and the perceived ideal promotion criteria, but it is our intention to focus mainly on the research versus teaching elements. We examine, first, the case for this emphasis on research productivity (as a promotion criterion). We then examine a proposal to break down the familiar and promotion-wise contentious research/teaching dichotomy *into a method of teaching by research*, even at the undergraduate level. We note, that from either a theoretical or practical viewpoint, there are many aspects of the current teaching-learning environment experienced by university staff and students alike which would likely render such a proposal unfeasible.

We seek to draw attention to the urgent need for any university to pay close attention to the way its teaching function is carried out, and to consider ways in which good teaching might be rewarded. This, in turn, raises the issue of institutional policy change, specifically promotions policy change, and it is with an assessment of the difficulties inherent in policy change in the university environment that we conclude our paper.

Sample Description and Data Collection

An opinion questionnaire was adopted from a standard measure of faculty development (Bergquist and Phillips, 1975) as used by Beach *et al* (1980). It was designed to obtain opinions on institutional morale, job satisfaction, criteria for personal decisions, professional objectives, and resources for pursuing objectives. Certain background and general information was requested. We also added a section on teaching externally versus teaching internally. In this paper we will present data pertaining to promotion criteria.

Of the 373 academic staff surveyed, 124 (33.2%) responded. All ranks were well represented in the sample. The majority of the respondents (62.9%) hold tenured positions and 50% hold a Ph.D. or D.Sc. One-fifth of the tutors responding had already gained doctorates. Most of the respondents had been at the University of New England for less than ten years and had been employed at more than two tertiary education institutions before coming to the University. The respondents' professional experience as tertiary teachers averaged 11.8 years. The majority declared a greater interest in research than in teaching; and a significant number identified themselves most closely with their discipline (Soliman *et al*, 1982).

Findings

Respondents were asked to rate, on a five-point scale, seven items related to their promotion - first, in terms of how important they thought the items *actually* are in influencing their promotion and second, in terms of how important such items should be *ideally* (Table 1). According to rankings on actual criteria, research and publications were thought to be of highest priority in promotion. This finding is consistent with research-oriented universities. However, the academic staff at UNE do not appear to prefer to be evaluated by publications and research alone. The greatest difference between actual and ideal occurred with teaching and with student advising. Respondents thought that both these related criteria are under-rated and should be given greater weight in promotion. The greatest congruence between actual and ideal was for community service. Seniority was not thought to be very important as an actual, and less so as an ideal, criterion.

Table 1: Actual and Ideal Ratings of Promotion Criteria

	Actual			Ideal			
	N	Mean[1]	SE	N	Mean[1]	SE	Difference[2]
Research/ Publications	121	4.7	0.05	124	4.0	0.06	-0.7
Teaching	120	2.3	0.10	124	4.0	0.07	1.7
Administration	120	2.2	0.08	124	2.6	0.07	0.4
Service to University	111	1.8	0.08	113	2.4	0.08	0.6
Community Service	115	3.1	0.10	124	3.4	0.09	0.3
Student Advising	118	1.7	0.09	124	3.3	0.08	1.6
Seniority	111	2.7	0.11	119	1.8	0.06	-0.9

[1] Based on a scale of 1 (not important) to 5 (extremely important).

[2] All differences were highly significant at $P = 0.001$, except for service to the community which was significant at $P = 0.05$.

Most staff would like to see much broader criteria encompassing all their academic activities than those currently used in deciding on their promotion. The UNE respondents share the same views, particularly on the need for more emphasis on teaching effectiveness in evaluating their academic performance, with U.S. and international (Beach *et al*, 1980) and Australian (Genn, 1982; Boud and de Rome, 1983) academics.

There were slight differences among respondents from different faculties (Table 2) and ranks (Table 3). However, it is the senior staff who are most satisfied with the existing emphasis on research and

Table 2: Means of Actual (A) and Ideal (I) Ratings of Promotion Criteria among Respondents from Different Faculties

Faculty	N	Research/ Publications (A)	Research/ Publications (I)	Teaching (A)	Teaching (I)	Administration (A)	Administration (I)	Service to University (A)	Service to University (I)	Community Service (A)	Community Service (I)	Student Advising (A)	Student Advising (I)	Seniority (A)	Seniority (I)
Arts	47	4.7	4.0	2.4	4.2	2.3	2.6	1.7	2.3	3.4	3.2	1.8	3.4	2.8	2.0
Science	31	4.6	4.2	2.1	4.1	2.1	2.6	1.6	2.3	3.0	3.4	1.7	3.3	2.9	1.9
Rural Science	18	4.4	3.9	1.9	3.9	2.0	2.6	1.7	2.5	3.0	3.4	1.4	3.4	3.0	1.7
Economic Studies	23	4.8	3.6	2.0	3.8	2.1	2.7	1.6	2.1	2.8	3.0	1.2	3.2	2.4	1.7
Education	20	4.6	3.9	2.1	4.3	2.4	2.6	2.0	2.7	3.4	3.7	1.9	3.6	3.0	1.7
Resource Management	16	4.6	3.8	2.2	3.8	2.2	2.9	1.8	2.5	3.1	3.6	1.5	3.0	3.1	2.3

Table 3: Means of Actual (A) and Ideal (I) Ratings of Promotion Criteria among Respondents from Different Ranks

Rank	N	Research/ Publications (A)	Research/ Publications (I)	Teaching (A)	Teaching (I)	Administration (A)	Administration (I)	Service to University (A)	Service to University (I)	Community Service (A)	Community Service (I)	Student Advising (A)	Student Advising (I)	Seniority (A)	Seniority (I)
Tutor	26	4.5	3.8	2.1	4.0	2.4	2.5	2.0	2.6	3.0	3.2	2.2	3.6	3.1	2.1
Senior Tutor	4	5.0	2.8	1.8	4.0	2.8	2.3	2.3	1.5	4.0	2.3	2.0	4.3	4.0	2.0
Lecturer	30	4.8	3.8	2.2	4.0	2.2	2.7	1.7	2.4	3.2	3.3	1.3	3.2	2.7	1.8
Senior Lecturer	26	4.8	3.9	1.9	4.0	2.0	2.7	1.6	2.5	3.0	3.6	1.2	3.2	2.3	1.8
Associate Professor	13	4.6	4.6	2.7	4.0	2.2	2.6	1.7	2.3	3.6	3.6	1.9	3.1	1.9	1.5
Professor	16	4.6	4.4	2.9	4.2	2.3	2.6	2.1	2.3	3.1	3.5	2.2	3.4	2.9	2.0

publications. In part, this could represent a self-fulfilling prophecy, as the quality of research is an important criterion for promotion and appointment to these ranks. Senior academics also perceive that there is more emphasis on teaching as an actual criterion for promotion.

Relative Importance of Promotion Criteria

The academic's role may be described in terms of three components: search for, and discovery of, knowledge via research, transmission of knowledge via teaching, and the response to societal needs via teaching and research. However, the relatively high influence of research and low influence of teaching on progress and promotion in the academic world is well established (Paulson, 1961; Hammond *et al*, 1969).

Universities are usually recognized as having three main teaching functions: *fostering* scholastic achievement and excellence, *assisting* the development of personal and social awareness, and *preparing* students to serve society (Benzenet, 1973; Pace, 1973). It is, usually, the first function which receives the most emphasis. In its final report to the Senate of the University of Alberta (1982) the commission enquiring into the nature, purpose and function of a university stated: "*It is clear that what distinguishes a university from any other institution of post-secondary education is its commitment to research*". Also, in presenting his case for the establishment of a university in the Northern Territory, Eedle (1983) argued that research opportunity provided by a university is a major component: "*The encouragement and support of research is central to the life and quality of any university, and to its reputation in the community. High quality staff cannot be attracted without the opportunity to undertake research*". Furthermore, Larkin Kerwin, President of the Canadian National Research Council, in his address on research given at the general meeting of the Association of Universities and Colleges of Canada expressed the views that "*Research defines the university. Research is more basic to the university than even teaching, than even public service; research lies at the university's core.*" (Pirre, 1983).

Although nobody will argue against the importance of research for the life of a university, there are issues which might be missed about the kind of research, the relative importance of research, and the weight it should be given in promotion. Genn (1982) reported the following order of importance as perceived by his sample in relation to five academic roles:

Teaching undergraduate students
Supervising thesis work of honours, masters and doctoral students
Pursuing your own research and writing
Administration
Activities linking university to community

Many academics consider administration time-consuming. A great number of current administrative duties might be left to trained administrators (Genn, 1982), who might also do a better job. However, there are still some components of the administrative task, especially the academic components, that have to be dealt with by academics, particularly with the increasing interest in democratic participation in decision-making in education (OECD, 1974; Pollay *et al*, 1976).

The two main roles competing for the staff time are definitely teaching and research. Genn (1982) has discussed individual differences in preference to these roles. However, the initial appointment requires the staff member to teach and do research. Later on, because of institutional needs and structures, some specific jobs may demand more involvement with administration. In our present discussion we would like to concentrate on the large majority of academics whose active roles are teaching and research.

Research as a Promotion Criterion

The controversy about the perceived emphasis in promotion on (published) research work, rather than on teaching performance, has a long history. Nearly twenty years ago, Caplow and McGee (1965) claimed that it was "*neither an overgeneralization nor an oversimplification to state that in the faculties of major universities in the United States today, the evaluation of performance is based almost exclusively on publication of scholarly books or articles in professional journals as evidence of research activity*". And a few years later, in Britain, Halsey and Trow (1971) pointed out that it was those "*academics with a research orientation (who) can look forward to a readership and can hope for a chair. Teachers cannot hope for more than a senior lectureship*". So the issue is a perennial one, but one which we believe will become increasingly more contentious as opportunities for promotion continue to diminish.

Why should there be such an emphasis on research in promotion even though it is only one aspect of the academic's duties? It is suggested that society needs to advance its knowledge through research and that such research is best done in universities. Although it may be conceded that universities have a special role in relation to research, it must be recognized that they do not have any longer a monopoly on that task. In fact, it has been claimed that today most research is actually done *outside* universities by industrial and other research organizations (Gunnar, 1977). In such institutions researchers have the facilities and the capacity to focus their time, energy and resources on specific problem(s) for which society is seeking a solution. Moreover, they are usually in a better position to see that their research findings are actually applied to the solution of the problem in question.

Nevertheless, it is argued that the primary research function of the university is *basic* rather than *applied* research - that very necessary investment in the future (McKeough,1980) and that it is only in the university that basic research can be successfully pursued, uninhibited by the constraints of project problems and objectives, guidelines and deadlines. However, most university researchers have to teach also and are involved in time-consuming committee work. Moreover, because of the wide diversity of academic training and backgrounds of staff, the university could still contribute to applied research with the development of interdisciplinary research directed to the solution of immediate and pressing social problems, such as those related to the environment and the economy. Unfortunately, the present structure of most universities into separate faculties and departments guarding, mainly, rigid "disciplinary" boundaries, does not encourage this type of research.

There are other reasons within the institutions for the apparent higher value placed on research than on teaching:

1. Most university teachers are trained to do research and not teaching. However, there is a misconception that good researchers are also good teachers (Morton, 1961) which implies that teaching ability and effectiveness is a by-product of research ability and effectiveness and not an activity of primary importance in itself (Genn, 1982) which requires special training.

2. Research productivity, measured by quality and quantity of publication, is easier to evaluate than teaching performance (Farmer, 1977).

3. Administrators may have more confidence in external reviewers and editors who judge quality of research publications, than students who judge teaching effectiveness (Beach *et al*, 1980).

4. Differences in values may also exist (Beach *et al*, 1980). Administrators may place more value on production of knowledge, which enhances the image and reputation of the university, while teaching staff may place more value on transmission of knowledge which enhances their relationship with the students.

Relating Teaching to Research

It has been suggested that the research orientation of universities might be justified, if not optimized, by adopting the inquiry approach to teaching, with mutual benefit to both teaching and research (Piaget, 1950). This would also allow the dichotomy of research versus teaching to be broken down. Such an approach would also ensure that an important condition for effective teaching (and learning), namely participation, will be met (Boskin *et al*, 1979). Yet, when the day-to-day teaching-learning environment of the university is examined realistically, there seems to be much which would serve to make this proposal unfeasible.

Why is it difficult to relate teaching and research?

Reason 1: Explosion of knowledge

The so-called "knowledge explosion" seems to pre-empt the opportunity for collaborative inquiry. It has encouraged a view of students as empty vessels to be filled with facts as quickly as possible. Frequently, staff find that every available contact they have with students is spent instilling these facts, so that departing students will not disgrace the respective department's name through crass ignorance.

Reason 2: Unacceptability of students doing the staff's work

The past two decades have witnessed an increasing student demand for involvement in course development and assessment. One effect of this has been for students to resist undertaking any project which does not form part of the work on which they will finally be assessed. Another outcome of this phenomenon has been increasing student antagonism towards involvement in work which they perceive will serve more to promote their lecturer's opportunity to publish, than their own chance of a favourable assessment! Also students' interests may be different from staff research interest.

Reason 3: Time-consuming teaching methods leading to less promotion-worthy publications

If the joint-exploration teaching method (teaching and learning by doing) is to be effective, it would mean more than asking the student to do the "hack-work". It would involve students and staff in joint definition of the problem, collaborative research design, participation in experimental and analytical principles and interpreting the results. From any staff member's point of view, it is more time-efficient to fill the vessels with facts, while continuing with one's own research. Moreover, staff frequently believe that specialized, experimental and theoretical work will count more in promotion than a practical consultant's report, and, consequently, staff may shy away from the very sort of research most suited to immediate societal needs and student interests.

Consequently, in practical terms, many staff may view the actual logistics of combining teaching and research as cost-ineffective, which would not only prevent the transmission of basic facts, but may also provoke hostile student reactions. At postgraduate level, with small numbers and less pressure for information transmission, the balance has frequently shifted and this teaching method has proven to be workable and useful. However, at undergraduate level, for the practical reasons given, most staff would not be eager to combine teaching and research.

Reason 4: Lack of association between research effectiveness and teaching effectiveness

Various investigations (see Friedrich and Michalak, 1983) have indicated a lack of association between effectiveness of an academic as a researcher and his effectiveness as a teacher. Research productivity and quality have no effect on the factors that seem to influence effective teaching.

Current Complexity and Importance of the University Teaching Function

Increasing societal demands for quality and diversity in education have led to the evaluation of the teaching function in universities. Educational quality and public demand for accountability have been identified as the major issues in post-secondary education in this decade. In the view of the Vice-Chancellor of Queensland University the kind of intellectual challenge inherent in teaching in higher education "*should mirror that of the research function of the university*" (Wilson, 1980). Fisher (1978) has also argued that the process of lecture preparation and delivery is an important research/learning activity for the lecturer. However, in assessments of quality, the teaching-learning function of higher education has been virtually ignored (Lawrence and Green, 1980).

The student profile is changing age-wise as is that of the teaching staff. Hore (1980) has already reported on two broad groups of mature age people entering Australian higher education - those needing re-certification and those re-entering the academic world - and has urged that the needs of these part-time students be put into institutional perspective. Further, it should not be assumed that younger students enrolling in Australian universities for the first time are no different from their counterparts of a decade ago. Do they have the same educational purpose, socioeconomic status, ethnic and racial background (Skinner and Hendricks, 1977). American studies have shown freshmen today to be less prepared and yet more expectant of higher grades (Clagett, 1980). Such studies also suggest that, among other things, American students today are overwhelmingly materialistic, cynical about society and its institutions (including higher education) and so competitive about grades that they condone cheating (Levine, 1980). Student dissatisfaction with the way universities carry out the teaching-learning function is more readily generated and expressed now than a decade ago, as has been evidenced, at least overseas, in the increased litigation against educational institutions for their alleged negligence in carrying out that function (Reisman, 1980).

Yet courses, programs and even institutions, are judged to be defective not because they necessarily lack quality, but because they lack students and, concomitantly, resources. But it may be asked whether university management should be dominated, in its quest for survival and growth, by students' needs?

Difficulties in Rewarding Teaching

Even though teaching is considered an important function of any university, good teaching is not rewarded in most universities. Reward brings with it psychological satisfaction and sense of achievement. It provides an incentive to improve teaching. Improved teaching can contribute more to the intellectual development of students to produce good citizens and future researchers. Interest in good teaching may help research (Soliman *et al*, 1982).

Our findings and those of Beach *et al* (1980), Boud and de Rome (1983) and Genn (1982) indicate the urgent need to reward good teaching. Such reward does not have to be at the expense of research. Teaching need only be accorded, as a promotion criterion, as much importance as research. However, this will require that teaching be assessed. There are several reasons (all related to the internal function of the university) why this has not yet been done.

Reason 1: Teaching is difficult to assess

The simplest reason is that it is more difficult to assess quality and productivity in teaching than in research. Perhaps that is why "promotion committees do count, but they do not read!". This axiom certainly reflects the "publish or perish" syndrome and an approach to promotion which, while it may be detrimental to research, must be disastrous for teaching.

Another problem is the firmly entrenched belief that teaching is an innate talent which cannot be enhanced by training. Genn (1982) has discussed the complexity of the concept of teaching and categorized it into "mystery" and "acknowledged accountability", and their sub-categories. Such discussion underlies the difficulties in assessing teaching performance: in relation to what to measure and how to measure it. Eriksen (1974) has indicated the types of evaluation which need to be carried out, namely personal, peers, students and has discussed the importance of each. Daugherty (1971) and Glasman (1976) have emphasised the need for defining good and bad teaching before specifying criteria for evaluation. McNeil and Popham (1973) believe in evaluating teaching by its product (student learning), but this raises another difficulty, namely that of measuring students' learning. Johnson *et al* (1975a and b) disagree with product evaluation. However, they concur with McNeil and Popham (1973) in placing greater weight on student evaluation. Genn (1982) opposes student and peer evaluation on psychometric, educational and ethical grounds.

Genn (1982) maintains that even if it is possible to develop criteria for measuring teaching effectiveness it is impossible to alter other variables outside the teacher's control that might affect his overall performance, *ie* work load (teaching and non-teaching), class size, and course level, difficulty, kind (new, old), compulsory or not. We could also add to the list, whether the course is disciplinary or interdisciplinary, student background and previous experience and whether the teacher teaches in one mode or two modes (internally or externally).

All these points indicate the difficulty of assessing teaching performance and the complexity of the teaching process. Serious steps have been taken at the national level to include teaching as part of the promotion system (Prosser 1980). Some Australian universities (namely, New South Wales and Queensland) have started thinking seriously about the inclusion of teaching performance as a promotion criterion. Genn (1982) however, has already raised some of the problems that might emerge as a result of this approach, such as student consumerism and the quality of teaching and student-teacher relationship. To us these problems are not of great magnitude and mechanisms could be developed to cope with them. Also, the same objections might be raised in respect of the present relative emphasis on research.

Reason 2: Inability of universities to react quickly to change and lack of overall planning policy

Wilson (1980) has estimated that well over 600 committees exist to manage the University of Queensland. However, committees typically result in compromise, frequently after protracted battles over trivialities. This results first in long delays in decision-making and second, in a tyranny of small decisions with a concomitant inability to develop long-term planning perspectives. At the very least, the supposedly democratic structures necessitate very large lead times in policy changes. Change in promotion criteria requires a major change in policy, which like any other policy change in universities, would necessarily suffer delay.

Reason 3: Pseudo-democratic decisions by the "old guard"

There is another more serious problem associated with this characteristically protracted democratic decision-making, namely that the real decision-making becomes concentrated in the hands of the few. In part, this is a result of the committee-based decisions. In turn, the inability of a committee-based decision-making structure (which in most cases advise only) to react appropriately and simply results in a concentration of power typically with the "old guard". They have most often achieved their status by high volume research and seniority, and see no reason to change the promotion rules.

CONCLUSION

Paradoxically, those who place such emphasis on research in the reward structure have no need of it, in fact, do not want to know about it, when it comes to research findings which might inform decision-making within their own institutions. But then, Machiavelli (1972) once counselled:

> "A prince should, therefore, always seek advice. But he should do so when he wants to, not when others want to."

Is then the essence of the promotion criteria debate simply how to make the university princes want to listen (Wirt, 1980):

> "This is my way ....
> What is your way?"

If we regard the administrative duties of academic staff as part of the teaching, service to university and student advising as part of the teaching roles, then, from the relative responses in Table 1, we could suggest the following weighting among promotion criteria: 40% research publications, 40% teaching effectiveness and 20% community service and service to the university. That at least, is the way the academics we surveyed would like to see it.

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INSTITUTIONAL SUPPORT AND RESEARCH FOR ACADEMIC STAFF WHO TEACH STUDENTS IN EXTERNAL STUDIES (DISTANCE EDUCATION)

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The academic in distance education should be seen as a pioneer in the development of a new educational paradigm, not just in techniques but in a changed educational role focused more on learning than teaching, facilitating the student to pose questions, use resources, focus on projects, and negotiate criteria for evaluation. This is in contradistinction to the traditional academic role where teaching has been controlled and the programmes, examinations, and the whole input-output of the educational process held within the hands of the academic. (Rogers, 1980)

Academics who work in institutions in which there is distance education activity are confronted with a central dilemma which leads to uneasiness and frustration. This is so, even in institutions such as the British Open University which are committed to only the one mode - distance education.

The basis of the dilemma is that distance education has been grafted onto the conventional. It has developed in the context of a macro-system which is committed to a different paradigm in which research is seen as central with teaching derived from, even subordinate to research.

In contrast, distance education reflects attempts to develop a different student centred paradigm in which learning is central; or at least, teaching requires a level of attention which it has not usually received in tertiary institutions.

Three propositions crystallise this dilemma:

1. The onus is usually placed on the proponents of distance education to justify it and demonstrate that it is not a second rate alternative to the dominant paradigm of face-to-face contact, manifest in lectures and tutorials.

2. For academics who participate in distance education, it is difficult to build up a commitment to the paradigm: loyalties and responsibilities lie elsewhere; e.g. with a discipline, research or related professional bodies. (Bradley, 1978)

3. Academics who participate in distance education have been socialised into the conventional paradigm. Thus, they have not had the opportunity of observing models and colleagues more experienced in this different paradigm. The norms and skills which an academic learns are not necessarily appropriate to the distance education paradigm. (Bradley, 1978)

In sum, there is no "culture" or at best a nascent "culture" of distance education with established norms, skills and rewards.

It is in this context that academics who participate in distance education activity are confronted with a number of particular problems.

Within the growing accumulation of data in the field of distance education there has been a focus on the performance, attitudes and study methods of students. A neglected area has been the performance, attitudes and methods of the academics who teach in this external mode. In a sense there has been a gradual change in tertiary teaching over this generation, away from large lectures to tutorial and small group methods; self-paced independent learning has been attempted with varying degrees of success, and academics have been party to these innovations.

Also the widespread acceptance of lifelong learning with its consequences of mature-age students returning to tertiary study has caused academics to adjust their teaching strategies, but then adjustments to academics' teaching methods over this generation are quite insignificant when compared to the radical change required in the off-campus mode where communication with students is at a distance and not face-to-face. The issues are further confused when the same academic has responsibility to teach the same course on-campus and off-campus. The natural tendency is to spend greater energy and time with the on-campus student and use the same methods to teach on and off-campus. It is not uncommon for a lecturer with 70 on-campus students and 200 off-campus students to spend a third or more of his time with the on-campus students. (Knowles, 1979)

The criteria offered, in the Victorian Post Secondary Education Commission Report on Off-Campus Studies in November 1982 (p. 33), as a classification of higher education institutions providing off-campus studies as "general" providers are interesting. Of the twelve criteria only one refers to academic staff development and a second touches on it with reference to research.

General providers should:

a) have a large number of students (approaching or more than 1000) enrolled in the off-campus mode, excluding mixed enrolments;

b) have a large proportion of the total student body (approaching more than 50 per cent) enrolled in the off-campus mode;

c) offer a range of courses and a range of subjects;

d) have a clearly defined administrative structure to manage the off-campus operation;

e) have developed a substantial and specialised expertise for the development, design and production of off-campus materials;

f) have a specialised system for course "delivery";

g) provide a range of educational and non-educational support services for off-campus students;

h) use appropriate technology to support "large" scale production of course materials;

i) have an adequate system for handling copyright;

j) undertake research in distance education (in the broader sense) and be active in the dissemination of research findings;

k) have a program of staff development for teaching and non-teaching staff;

l) have a program for evaluation of courses, subjects and systems.

As noted above, ten of these criteria refer to administration, support, production, numbers and the periphery of the teaching process and only two, j and k, refer to aspects of developing a new teaching and learning paradigm.

Several broader questions need to be explored about the goals of an institution that is required to participate in distance education, and also we need to analyse the reasons why the four major providers in Victoria and the other nine major providers in Australia involved in distance education have accepted this role. In some cases it seems to have arisen historically as a means of survival rather than commitment to this mode of study.

There does appear a commitment in these distance education institutions to use resources at least with administrative and support staff in such areas as production, printing, editing and despatch which gives rise to a willingness of such support staff to participate in distance education and see a special career path with growing openings. These provide the general membership of the Australian and South Pacific External Studies Association (ASPESA). The dilemma appears for academics who are more accustomed to a traditional university career path and this is reinforced in the macro-system of tertiary education which rewards their on-campus activities and participation.

Our own experience shows that here dilemmas, frustrations and uneasiness are evident in apparent conflicts for academics who work in institutions serving both on and off-campus students. Some illustrations of these are:

1. The need for detailed preparation of study guides and lecturer notes in advance. This is to be done without the stimulus of interaction with classroom students: it is a new experience for individual lecturers.

2. This is compounded by the fact that lecturers have their teaching methods and content open for peer comment and criticisms in a written form. Traditionally they were master in the classroom and resented as intruders anyone but students who entered their class.

3. Academics have been used to working alone and when course teams are used for preparation of material little attention has been given to the development of skills for interpersonal communication. This is essential if there is to be mutual support to enhance and not diminish the quality of the intellectual output.

4. There is a lack of detailed institutional policy to clarify that external studies is a major part of the educational philosophy of the institution. Under such circumstances, academics tend to fall back on familiar modes. (Bradley, 1978) Thus the tenuous situation of distance education is reinforced and retards the development of a different paradigm.

5. The lack of attention to the process of career path and reward structure for participants in distance education is illustrated by a literature search which indicates that there has been no attempt to look at this matter, at least in Australia.

6. Too often, external studies has grown as a pragmatic means of holding student numbers and maintaining financial viability. While institutions welcome such public designations as "major providers" they have rarely followed through with detailed guidelines of support and resources to do the job adequately.

7. This is not aided by the lack of clarity as to how best to teach off-campus and what support and resources to offer academic staff. The first tendency is to bring on-campus strategies to bear as a substitute for alternative means of communicating with distance students, such as a dependence on weekend schools. Some suggestions that appear to be valuable can be counterproductive, for example, giving academics time off from on-campus teaching to write study guides as this can place the lecturer in a vacuum where stimulation dries up and good creative writing just does not flow.

8. External studies confuses many academics who thrive on the intellectual exchange with students but are quite lost with the extended isolation from their students. It is easy to understand how academics teaching on and off-campus postpone the writing of study guides until the last moment when they are put under great time pressure that can lead to sub-standard academic work.

9. The recurrent source of grievance is that many lecturers assume that their superiors do not recognise that writing for external students is equivalent to teaching and rarely does it appear that they give weight to these activities when considering cases for promotion and tenure.

From these dilemmas and frustrations a number of questions arise that need answers:

- Why do academics participate in distance education?

- How well do they cope?

- How do academics see their future by participating in distance education?

- How do they see their promotion and what do they do to achieve promotion?

- Do academics perceive any need for specific skills for distance education?

- Do the institutions provide any specific training for distance education and if so, do the academics avail themselves of that training?

- Do they seek out any specific training or depend on their existing skills for off-campus teaching?

- Is there a different focus on teaching and learning methods for people involved in distance education, or do they rely on their traditional ones?

These are some questions that have emerged after extensive involvement with distance education programs. We are conscious as already noted that much data have been gathered from students studying off-campus but very little have been gathered in Australia from the academics involved in the process.

We plan to seek information from a sample of teaching staff across several institutions to try and identify the perceptions of conflict, lack of rewards, failure of institutional support and their suggestions as to how best overcome the apparent problems.

Our hypotheses are:

That distance education will remain on the periphery of tertiary education in Australia until those institutions designated as major providers -

(a) have clear statements of policy as to how they will fulfil their role of a major provider in distance education;

(b) give training for academic staff in the different skills required for distance education; and

(c) develop a reward structure and career path for academics which recognises the dimensions of distance education.

This means that in a proposal we must set out a method to clarify:

(a) What are the details required in such a Policy Statement?

(b) What are the skills required by academics and how are they best developed?

(c) What are the rewards and the criteria for those rewards and what is a distance education career path for an academic?

It is proposed that data would be collected from several institutions which are major providers of distance education such as Massey University, Deakin University and Gippsland Institute of Advanced Education.

A sample 15 per cent of full-time academic teaching staff from senior tutor upwards will be selected on a stratified basis with the following criteria:

1. All schools (or their equivalent) be represented.
2. At least 30 per cent of academics who do not participate in distance education.
3. Representing the length of time in distance education from 1-14 years.
4. Sex on a proportional representation.

Data will be collected to test the three hypotheses in the area of

(a) Policy

(b) Training Development

(c) Rewards and career path.

To do this, data will be collected from two groups to examine any conflict between the practice of an institution and the perceptions of the academic staff.

Firstly, there will be interviews with academic staff consisting of:

(a) A questionnaire will be sent in advance.

(b) A project member will visit the academics and go through the questionnaire.

(c) The responses will be recorded, transcribed and returned to be clarified and confirmed.

(d) These data will be analysed in a descriptive case study document from which will emerge directions for the three hypotheses.

Secondly, data will be collected from the institution by interviewing the Registrar or equivalent at the three institutions. We will consider sending a questionnaire to the other major providers for information on the areas covering:

(a) Policy

(b) Organisation to cope with distance education

(c) Rewards given to academic staff and career path; i.e. rewards for participation in distance education.

From this we would examine whether there is a conflict between the institutions' perceptions, organisation and stated policy and the perceptions of the staff.

APPENDIX

Questions re Policy:

1. Do you have a personal position on distance education? What is it?
2. How does your position on distance education fit in with your institution's?
3. Does your institution have a policy on distance education; a statement of institutional goals?
4. Were you aware of this when hired? Has it changed? Do you agree with it? Is your institution effective in accomplishing such goals?
5. Is your school effective in accomplishing such goals?

Questionnaire on Development:

1. Do you see distance education as a specialist area of tertiary education?
2. Are there special skills required for teaching distance education? What?
3. What are the teaching/learning lessons that you have gained from working in distance education?
4. Does your institution provide any distance education staff development?
5. Have you participated in the seminars on distance education or read any books/journals on this subject?

Questions re reward and career path:

1. Is there a career for you in distance education? If not, why not?
2. How does your institution reward you for work specifically in distance education? Is distance education participation taken into account?

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INSTITUTIONAL REWARDS AND PERSONAL GROWTH: WOMEN IN EDUCATIONAL ADMINISTRATION

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Women as a group represent a major source of untapped abilities to meet our country's labour needs. It is a natural desire of every employer to want to hire the most qualified person possible to fill a particular position. Unfortunately there are employers who feel that women by their natures are not qualified to make executive decisions and when employed in an office are best employed as clerical or secretarial staff. Such employers are, however, a steadily decreasing minority. There is apparently more to the problem than employer hesitancy to employ women - there is also women's hesitancy to be full and equal competitors with men.

Despite their small numbers, however, career women are playing an important role in our educational administration system and their influence will continue to grow. There is no doubt that women are changing the management style of the system. Many management theorists have speculated that bringing women into management would lead to the development of different management styles. This study suggests that this is so. The entry of women into a male dominated system appears to have produced a less autocratic, more co-operative, democratic work group.

There are, no doubt, many reasons for the changes women in general bring to previously male dominated work groups. This study began with a conversation which demonstrated that some women in educational administration in a Queensland education system seemed to hold certain values in common. These values manifested themselves in common ways of thinking and behaving; and more importantly, had resulted from major life crises and personal growth experiences following those crises. The women seemed to think that these personal growth experiences had allowed them to discard previously held values and behaviours which were harmful to them and to "relearn" different values and behaviours which enhanced their lives and thus their work.

The women disclosed that their relearning had led to their being more independent, autonomous and assertive. They were also enjoying higher self-esteem and a positive approach to life and work. They saw as valuable "female" traits such as intuition, but were comfortable with "male" behaviours, e.g. assertion. These changes, they disclosed, had not changed their goal-setting and achievement-oriented behaviour; rather they saw the "relearning" as giving focus to their achievements and enhancing them.

WOMEN IN ADMINISTRATION/CHANGES TO THE SYSTEM

Men's Interviews

In order to investigate the changes that women are making to the system, and to explore the differences between the groups that are all male and those male/female groups, twelve men were interviewed who work with the women who were interviewed in an earlier study. Six of the men work in groups with women, and six work in all male groups. These men were questioned about their perceptions of the women in the system, their management styles, and the changes that they are making to the work groups and to the system as a whole.

Results of Interviews

The men commented that some of the women tended to be pushy and aggressive, but they seemed to behave more "naturally" than "other" women. The women were honest about their feelings on issues that occurred in the work groups. Some of the men suggested that the women were sometimes a little too honest and that they were embarrassed about this. They were seen to be more assertive than "other" women which was seen by men as "unbecoming" and "put women down". These women were seen as emotional and volatile and were seen to be operating on a different level to the men in the groups. Many of the men commented that they were "too deep" and acted intuitively in many instances.

The women administrators were perceived as different from men administrators in their warmth and open friendliness shown to others in the system regardless of their place in the hierarchy. The men commented about their uneasiness in working with women who held a superior position to them in the system. The majority of men said that the women were making important changes to the system and that because of the more open communication between people im the work groups and between sections in the system, that the work groups were more friendly, more fun to be in and more honest in their communication. Some of the men felt uneasy about women being competitive in the system although they were not sure why they felt uneasy about it. This finding is similar to that of Kirkpatrick (1975). He found that men considered that it was not appropriate for women to seek promotion within the system but considered that it was expected of men to do so.

The work groups containing women were compared to those groups that were all male. The comparisons were made on four factors, group maintenance, task orientation, individual needs, and self-esteem (Schein, 1970; Mann, 1969).

The male groups were task oriented with each member of the group doing the tasks allotted to him. Each member was aware of his role which was clearly defined and the overall goal of the group was to accomplish the tasks as set out. Group maintenance was not considered to be an important part of the process. Communication between group members was semi-closed. Conflict and competition for promotional positions was extremely high. Individual needs appeared to be ignored within the male work groups. Feelings and emotions were considered to be a female characteristic and not part of the functioning process of the group.

The group members described themselves using more negative adjectives than did the members of the mixed group.

The female/male groups considered the task to be of prime importance but did not neglect the other two areas which were considered to be important for the efficient running of the group. Tasks in this group, although assigned to individuals, were shared more amongst the group. Members sought advice, ideas, and concepts amongst other group members. This was encouraged by the group leaders. Group maintenance was considered to be important. Meetings are a regular occurrence in an effort to give information about what is happening in the organization to all its members. Individual needs appeared to be continually expressed. Feelings and emotions were dealt with openly and honestly. The women interviewed used fewer negatives than the men to describe themselves, however the men in this group used fewer negatives than the all male group in their descriptions of themselves.

WOMEN AND MASLOW

One of the first theorists of influence to stimulate thinking that persons acted to satisfy wants and needs was Abraham Maslow. According to Maslow, humans have needs to be satisfied e.g. for physical wellbeing, safety and security, which must be met before they are free to put their energies into obtaining needs of wishing to belong to society and be accepted by others, and then of satisfying needs of self-esteem and the esteem from others. Humans continually strive to achieve self-fulfilment and self-esteem. These needs are high level needs and include the need for personal growth. He states that the extent to which the various needs are met will determine to a large extent the satisfaction of the individual, mental health and happiness. If a person has reached the level of self-fulfilment, we would conclude that that person would be achieving fairly high satisfaction with life, would be healthy mentally and would tend to be a happy well-balanced individual.

It has been shown that all the women in the study have attained a high degree of personal satisfaction in life through a conscious decision to improve themselves and have undergone a process of personal development. They have therefore reached a high level of self-esteem and it can be theorised that they are healthy mentally and are well-balanced individuals. These women have a need to be recognized as people of worth in the system but their need for recognition is not as frustrating to them because they operate at a higher level on the Maslow hierarchy of needs than the men in the same system. The fact that their need for recognition by the system is not being fulfilled is not as important as it would be if their self-esteem were not as high. The men in the system do not appear to have attained such high levels of self-esteem as the women, and therefore their needs, according to Maslow (1971), are at a lower level. Their need for the esteem of others is very high. Men in the system need to satisfy their esteem needs within the organization during work hours and after work hours. Their needs are very strong and their behaviour tends to be more compliant, more dependent on the system, and can be perceived as conforming to the system's behaviour standards.

The women in the system are obtaining satisfaction in other areas of their lives, i.e. political and women's organizations, university studies and other pursuits, and can satisfy their needs in any single or combination of situations where they place themselves from time to time (Schein, 1970). This freedom to move between systems to satisfy their needs, places an added dimension on the system. The women in the system are more free to withdraw from it if it is no longer satisfying their needs, and if the system is dependent upon their input, this withdrawal (or threat of it) could threaten its survival. The system will therefore try to get rid of the women by denying them recognition and other negative responses to them. The men close ranks until the homeostatic state is regained and will be loath to employ more women in the system. If too many independent non-complying women are employed, they may all leave the system and it may then cease to exist. The system must not allow this to happen.

SYSTEMS ANALYSIS

Although systems are resistant to change, they must be responsive to external events to some degree. The degree of openness is critical to their survival and stable growth. If a system is so open to events that it responds to every external influence, it may not develop internal stability, but if it is unresponsive to external scimuli, the value of outputs of the system can be reduced (Churchman, 1968).

The two male dominated systems in this study operate as semi-closed systems which receive inputs from political organizations, women's organizations, the media and the community, all suggesting the entry and promotion of more women into management. But although these ideas go through the processing channels, they are acted on slowly. The system does not change fast enough to provide for the changing needs of women in the community. Until the feminist movement gathered momentum in Queensland, there was little questioning of the system and the dynamic relationship between the system and the community of women was fairly homeostatic and stable and there was no pressure on the system to change. There is a stable relationship between the male dominated unions and the male dominated systems requiring little reason for the system to change.

Pressures from women's organizations, individual women and the media are requiring male dominated systems to change and admit women into higher management positions and other responsible positions. However, the systems are applying negative feedback in order to maintain stability and equilibrium and prevent change from happening. These systems are unable or unwilling to change from their set behaviour patterns that have worked so well in the past and it can be expected that they will become even more anti-women in an effort to restore maintenance of the system. This may even work for a short time but with continued pressures from both outside and inside the system, from the media, women's organizations, and the women who have managed to "break into" these systems, they will change or if they don't change to meet the needs of the community, conflict and aggression from the women being discriminated against, will cause disruption of those systems.

To maintain equilibrium, these systems have to keep inputs and outputs stable with little change to the numbers of males in them. Innovations will be ignored even though the needs of women wanting promotion and those wanting entry to the systems are being totally disregarded. It has been found that women do cause changes to a system and are seen by men to be a threat to their authoritarian management styles.

The women who have managed to enter the system are bringing refreshing ideas, management styles, warmth, emotionalism and independence to it - a change that the semi-closed system sees as a threat to its survival.

The banding together, specializing and obtaining feedback from others in the system on the acceptance of one's behaviour are survival techniques that appear to be part of the male-dominant system. The women in these systems form survival groups within the system, but these women appear to have a greater ability to be more independent and to have a greater capacity to look after their lone survival. System and individuals are dependent on each other for survival, but the fact that women are seen as threats to male systems lessens the women's needs to be dependent on the system for their survival.

The male system exerts a very powerful influence on the behaviour of the individuals within its ambit, and forces individuals to get along with each other, to conform to norms or permissible behaviour boundaries, attitudes and relationships to each other. It acts in this way to ensure its own continuity which is dependent on the relationship between parts of itself, the males of which it is mostly composed. The small female group within the system exerts less powerful influences on the behaviour of the women within its ambit; individuals do not conform to behavioural norms, they are freer to show emotion, to show anger, and to voice different attitudes and values to the other women in the system. The relationships of the women are more supportive and less competitive than between the males in the same system. These systems appeared to be less dependent on the relationships between the women within it in order to survive. It does appear to survive on common support of men against the common enemy - women. However, because of this, women's needs for the male dominated system would be likely to be less than men's needs for it. The system therefore values a male more highly than it does a female.

CRISES, CHANGES AND RELEARNING

An important focus in this study was the subjective responses of the women in the system as they believed their crises, changes and relearning had taken place. In a few studies, (Posluns, 1981; Filson, 1975; McGinnis, 1975; and Home, 1978) change is examined.

Paul McGinnis in his study of CUSO volunteers in Nigeria reports that the trauma and the relearning that his respondents had undergone had shown three major trends. They are:

* altered awareness of self and others
* more conscious of personal strengths, weaknesses and motives
* greater sense of control over their own lives.

So it seems that persons undergoing changes and relearning exhibit common trends when life enhancing relearning has taken place.

Glen Filson also shows that those who had successfully relearned

> "go on to be powerfully changed by their experiences
> and are more confident, self-reliant, independent
> and mature as a result." (p. 139)

The implication of the above is for educators to understand this process of change and relearning so that individuals can successfully gain from such crises, changes and relearning.

Posluns categorized areas of change and strength of change in women in a Canadian study and the review of the literature generally and Posluns, McGinnis, Filson and Home in particular, suggested that the following areas of change were likely to appear:

Self-image
Job/Study
Relationships with men
Behaviour
Lifestyle
Attitude to the situation of women in organizations
Participation in social action around women's issues
Relationships with women.

In trying to discover what "relearning" took place, how it took place and how it is presently being manifested, a personality style inventory test and a structured interview was given. A cut-off rank was chosen, as positions above this rank were traditionally male. Women above this rank had deliberately applied for the promotion which would change their position and nature of work. All the women above this cut-off rank were contacted and all responded and participated. There were ten women in all.

The major life crises reported by the women were described as impending nervous breakdown; personal trauma, emotional strain, distress or trauma and mental anguish or distress. Sometimes the crises involved a combination of these descriptions.

At some time after the crises the women decided to change a previously held value and/or behaviour for a more self-enhancing value and/or behaviour. The most common value changes were:

	Social Value (Past)	Person's Value (Present)
1)	work valued for financial reasons.	work valued for its intrinsic satisfaction.
2)	working self valued as a contributor to home.	working self valued as a contributor to work, home and community.
3)	placed little value on ambition e.g. promotion.	values promotion as recognition of contribution.
4)	women are inferior to men.	women are equal or superior to men.
5)	womanly emotions are a weakness.	womanly emotions are a personal strength.
6)	dependent in personal relationships with males.	independent in personal relationships with males.
7)	acquiescent in work relationships with males.	assertive in work relationships with males.
8)	responsible for household and tasks divided on sex lines.	equal division of household tasks (not sex-typed).
9)	role acceptance of dual home and work roles.	refusal to accept dual role.

10)	playing different roles in different situations.	playing adult (Transactional Analysis) or being ME in all situations.
11)	valuing non-assertive or "manipulative" behaviour.	valuing honest, assertive behaviour.
12)	doing things for approval of others.	doing things for self-satisfaction.
13)	little control over own life and destiny.	controlling one's own life and destiny.
14)	reliant on male partner.	self-reliant.
15)	acquiescent of norms regarding lifestyle.	social norms regarding life-style not as important as personal choices.
16)	acquiescent of social norms of female identity.	individuality highly valued.
17)	rivalry with other women in organizations.	feeling of sisterhood.
18)	little support for other women in organizations.	support and commitment to women's causes in organizations.
19)	no support for women's issues (other than those seen as welfare).	supporter and/or active worker for women's rights.
20)	friendships with sex-role stereotyped women.	friendships with women with similar life changes or androgynous women.
21)	accepting a small range of people.	accepting a wide range of people.
22)	above values leading to struggle for higher self-esteem.	above values giving higher self-esteem.
23)	above values leading to struggle to restrict behaviour to "womanly" behaviour only.	above values leading to the right to own "male" and "female" behaviours.
24)	struggle for identity and individuality.	integrated sense of self as an individual.

The characteristics these women held in common were revealed in their preferences in a personal inventory test. The common characteristics are grouped into four major areas.

Area One: Introversion/Extroversion

1) Eight of the ten women preferred quiet thoughtful time alone to active energetic time with people. Although this may make them sound introverted or anti-social, most of the women reported that they led busy "hectic", varied lives with much interaction which they enjoyed.

2) Seven of the women preferred inner thoughts and feelings others cannot see, to activities and occurrences in which others join. While leading fairly interactive lives, with much oral communication, most women preferred this introspection.

3) Seven of the women preferred to communicate freely their inner thinking and feelings to communicating little of them. They valued frankness and honesty in colleagues and friends.

4) Eight of the women preferred meeting new people rather than being alone or with one person they knew well.

Only four items were common to seven or more women. Two items indicate their need to interact with people as well as quiet time alone. Such balance is reflected at work and is likely to be confusing to colleagues expecting women to be quiet and docile all the time.

Area Two: Intuition/Sensing

1) Seven of the women preferred being called imaginative or intuitive rather than being called factual and accurate. They placed a high value on this previously (and perhaps still) denigrated "women's" trait. They seem to have put the "male" values of fact and accuracy into a less important category.

2) Seven of the women preferred possible views of the whole rather than the factual details available. One respondent clearly said that her relearning had given her a more universal/global attitude to her job.

3) Eight of the women preferred ideas to facts.

4) Seven of the women preferred imagining the non-existent to examining details of the actual.

On the intuitive-sensing dimension four areas of commonality arose and all were intuitive. Seven or more women preferred imagining, working out novel problems, new ideas and working with the complicated, rather than detailed attention to fact and tedious careful, patient work. This style is one of imagination, vision and the future and offers much to an employer.

Area Three: Thinking/Feeling

1) Seven of the women preferred making decisions about people in organizations based on empathy, feelings, and understanding of their needs and values, rather than making decisions about people based on available data and systematic analysis of situations. Once again, a "feminine" trait is being prized rather than a "male" trait.

2) Seven of the women preferred drawing conclusions based on what they feel and believe about life and people from past experiences rather than drawing conclusions based on unemotional logic and careful step-by-step analysis. They are prepared to trust their feelings and past experiences when drawing conclusions.

3) Seven of the women prefer helping others explore their feelings rather than helping others make logical decisions.

Although these women, by their very activities, demonstrate their cognitive capacity and ability, nevertheless they see as important the role of feelings when dealing with people. All three items are identified as feeling items. The high agreement in this area occurs only in these three feeling items. They would be considerate and understanding rather than critical; and tolerant and accepting rather than objective and analytical. Such women would be likely to look for areas of consensus, to be tolerant of a wide range of people and show warmth and interest in others. They obviously prefer to use this style in work as well as life and find it a strength not a weakness.

Area Four: Perceiving/Judging

1) Seven of the women preferred pushing for definite commitments to ensure that they are made rather than allowing commitments to occur if others want to make them.

2) Seven prefer setting a schedule and sticking to it, rather than avoiding making deadlines.

3) Nine of the ten women preferred getting the information they needed, considering it for a while, then making a fairly quick, firm decision, to considering every possible angle for a long time before and after making a decision.

4) Nine of the women also preferred change and keeping options open to predictability and knowing in advance. Although 3 and 4 may seem a little at odds, one of the relearning gains seems to be self-assurance and loss of insecurity. This may be why the women who make decisions are not afraid to face change.

5) Eight preferred planning ahead based on projections, to planning as necessities arise just before carrying out the plans. These women enjoyed setting and achieving goals rather than "bandaiding" a project.

6) Eight preferred keeping appointments and notes about commitments in notebooks or in appointment books as much as possible rather than minimal use.

7) Seven of the women preferred being free to do things on the spur of the moment rather than knowing well in advance what they are expected to do.

8) Seven of the women preferred to start meetings when all were comfortable and ready, rather than at a pre-arranged time.

In Area Four, five items of judging, 1, 2, 3, 5 and 6, were scored as preferred by seven women or more. Three items, 4, 7 and 8, are perceiving items and were also scored highly. This area contrasts quite strongly with the area of intuitive/sensing. Judging is the area of decision-making, planning, controlling. Perceiving is compromising, being open to change and flexible. The very large area of agreement, eight items, is broken down into five items where women prefer to plan, give orders, control, make decisions. Their preference is for strong quick action. But as pointed out earlier "softer" perceiving items were also valued highly. This combination of behaviours "male" and "female" is characteristic of androgynous women (Sargent, 1977) and most of these women.

After the crisis and change relearning took place in many ways. One major category is formal structured learning experiences managed/ delivered by others while the learner is fairly passive. This would include:

a) enrolling as a mature-aged student for a formal body of knowledge;

b) attending seminars for a body of knowledge or body of processes;

c) attending feminist conferences.

The formal body of knowledge was the area in which the women participated to give them the confidence they needed to set and achieve other goals (five women). The choice of subject allowed them to question previously held values and to clarify their new values. The women chose to study psychology or a strand of psychology occurring in other disciplines, women's studies, sociology and counselling. University degrees and especially higher degrees, were valued for their credentials. Some women reported women had to be over-qualified to compete with men in a male-controlled system.

Attendance at seminars (work related or not) was often used to reinforce or expand new understanding of self and others. The seminars ranged from using herbs for health to understanding the problems of migrant women. Attendance at feminist conferences is rare as few are held in Queensland. These conferences concentrate on women's issues and although very little statutory affirmative action flows from them, women have reaffirmed relearned values they saw as appropriate to their situation as women.

The second major category is informal, usually unstructured and/or experiential learning, in which the relearner is highly participative:

a) discussions with "credentialled" counsellors;
b) attending workshops and participating in experiential learning;
c) conversations with significant others;
d) observing role models;
e) personal reading;
f) using non-traditional medical help;
g) esoteric enquiry;
h) meditation and other forms of relaxation and stress reduction.

Discussions with "credentialled" counsellors, like clinical psychologists were used by only two women. Most women did not seek professional help. Attendance at workshops are relearning situations where respondents changed values held about self in the space of a weekend, and then relearned to value themselves differently. They deliberately chose to learn techniques (behaviours) which would enable them to retain that value of themselves permanently. None of the workshops was run exclusively for women.

Conversations with significant others formed a large part of the relearning. It was during such deep conversations that the women examined the values which had been so harmful to them and "talked out" the old systems of values. The significant other was frequently another woman. Observing role models and being able to contact and keep in contact with role models is another relearning experience. Referring to role models at work and social contacts with role models were seen as stimulating value reinforcing experiences.

Many of the women found reassurance for the value changes in reading. This usually led to a further questioning of other values and further reading to support such a change. The reading covered a wide range but few referred to "feminist" literature. Almost all the women (eight of the ten women) have used such non-traditional medicine as acupuncture, chiropractic, naturopathy, homeopathy, orthomolecular psychiatry. The questioning, distrust, suspicion of the establishment medical practice and the consequent change from high value to low value led to relearning of being aware of physical health needs, taking responsibility for discovering remedies and consequent treatment. For many women the personal growth began with taking responsibility for their own health. The women who used esoteric knowledge and processes found that scientific enquiry (again a male-controlled area) did not have the answers they needed to the experiences that they had undergone. This esoteric knowledge and practice is not used as a crutch. The women who use it are goal setters and achievers and look upon it as part of their repertoire of knowledge and skills. The women have actively sought forms of physical and mental relaxation such as sport, gym workouts, stress reduction workshops, meditation and other forms of relaxation. Two points need to be made: firstly, that the value placed on self has meant discarding early learning on suffering through mental or physical pain and relearning a set of values in which the woman takes responsibility for reducing her stress level; and secondly, that this relearning involves much more control on her part on what she will allow to raise her stress level.

The women in this study appear to have undergone relearning experiences following major crises in their lives. These major crises involve freeing themselves from one set of values (usually parental, ethnic and/or societal) and relearning another set of values for themselves. They were also at ease with change and generally not afraid of the unfamiliar or the future. Although the struggle to free themselves from previous socialized learning had been stressful they were nevertheless pleased with the "new" person and intended to carry on the process of "becoming" (Rogers, 1977). Most women saw themselves continuing this process of value change and relearning even if it had been stressful. This complements their preference for quiet thoughtful time alone in the personal style inventory test. Except for religious retreats, no adult programme incorporates the introspective, contemplative part of learning. The implication is that models of learning disregard this aspect. It is definitely part of the personal growth relearning. Although much of the relearning that the women in this study did is informal, if this is included in a model for learning, much could be provided for successful gains. Although the early value changes appear to have been made without much deliberate thought, later value changes seem to be deliberate and relearning experiences consciously sought out and followed through.

IN CONCLUSION

The women in this study appear to have undergone similar personal growth patterns and changes following major crises in their lives.

They have all been successful through their own determination and personal pressure on the system in gaining entry into the system. Because the women seem to be freer of sex role prescriptions than their male counterparts in the system, they seem to have produced an androgynous management style incorporating both masculine and feminine characteristics. The women appear to be both achievement oriented and determined and also open, and able to understand subordinates' difficulties, willing to give honest criticism and amenable to revising goals. Concern is sometimes expressed in management that as women enter professional and managerial careers on an equal basis with men, they will lose their nurturant and empathetic feminine characteristics (Gullahorn, 1977). However, it would be hoped that as women rise in status and power, they will see their feminine nurturant and empathetic characteristics as vital to their success as good *managers* and not because they are *women*. It may become acceptable and desirable that men will also throw away their role stereotype behaviour and adopt nurturant and empathetic behaviour. This would allow people to incorporate their individual style into management; the style they find most effective and most comfortable for them without being overly concerned about whether the characteristics they are showing have been previously stereotyped as "male" or "female".

Following this study it appears that the problems of women entering male dominated organizational systems is manifold and extremely stressful to the women concerned. Only the most determined and confident women seem to be successful. Those women who have been through a major life crisis and have the resilience to withstand the put downs and the suspicions, and criticisms from the men higher in the system trying to keep women out, are the successful ones at present in management positions in the system. However, encouragement for women is gathering momentum as channels of communication are being opened up by the women already in the system. The women in the system are serving as role models and are increasing the self-confidence of the women trying to enter it.

This study needs to be further developed to discover more about these women who have suffered trauma, crises, pain and unhappiness and have become more cheerful, honest, achieving and caring people. We think our society needs such women in much larger numbers and needs to know very quickly how this change and relearning can take place and how education can aid it. The women are a definite factor of social change and we need in a rapidly changing world to know as much as we can about them to provide relearning experiences for the benefit of others.

Affirmative action to bring women into management is well worth the effort because if women can succeed in the system, we believe that women will have achieved not only an improvement in the utilization of valuable human resources, but also, an enhancement of our humanity.

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CHAPTER 4

EVALUATION AND PROFESSIONAL DEVELOPMENT

Promotion is based on past achievement and the promise of future achievement. It is as much reward as incentive. Usually it is only tenuously connected with professional development. However, tenure decisions and evaluation during the probationary period are (or rather can and should be) closely related to professional development.

Jones and Imrie provide an overview of the professional development opportunities for new and other staff in Australian and New Zealand universities and colleges. They address policies, provision and responsibility for staff development. Before arguing that an institution or all institutions should provide specific services it is salutary to know what provisions there are and what seems acceptable to institutions.

Staff used to regard achievement of tenure as a formality. But it is increasingly becoming a reward, not to be granted quasi automatically after a nominal probationary period, but to be earned through satisfactory performance. Thus the probationary period when performance is actually monitored provides a unique opportunity for evaluation and staff development.

McIndoe in his paper, "Making appropriate use of the probationary period: a model for academic staff", approaches staff appraisal during the probationary period from a developmental viewpoint. Drawing heavily on Bergquist and Phillips he argues for portfolio evaluation as an ideal vehicle for developmental work. As noted by Genn, coercive evaluation creates dysfunctional behaviour and may be counterproductive. Appraisals based on the staff member's own assembled documentation in portfolios could be seen to circumvent this danger. McIndoe would like to see the Bergquist and Phillips model implemented in his institution, and he suggests that a member of an education unit be part of the review committee. McKinnon, Genn and others query such a role for education units. Many staff in units would query their involvement in a review committee.

Moses describes in her case study of professional development and evaluation during the probationary period the process of implementing a scheme for the evaluation of teaching. Her concern is to supplement summative with formative evaluation and to provide for professional development opportunities to accompany the evaluations. While Stone, Genn and McIndoe champion ideals, in her case the institutional commitment to evaluation was given and the ideal had to be reconciled with the institutional reality. In the process of developing an evaluation system the animosity to which Genn referred was consciously defused. She, like McIndoe, is in favour of documentary evidence being supplied by probationers.

All these papers share a common concern for clarity of institutional objectives and expectations of staff, for openness of evaluation purposes and of evaluation criteria. They also seek to find ways to increase job satisfaction and excellence of academic work in a non-threatening supportive environment which is open to change.

PROFESSIONAL DEVELOPMENT POLICIES FOR ACADEMIC STAFF IN AUSTRALIA AND NEW ZEALAND

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INTRODUCTION

The terms staff development and professional development of staff have been in use long enough for most people in higher education to have an intuitive grasp, at least, of what is involved. Within the broad notion are contained ideas which relate to both the individual staff member and to the institution. One of the most-quoted "definitions" of staff development is that due to Harding and Kaewsonthi (1977):

> "Institutional policies, programmes and procedures to facilitate and support the professional growth of staff so that they may more fully serve their own, students' and institutional needs."

Whether the one set of policies can lead to a deeper and coherent fulfilment of the needs of staff, students and institution is debatable; this is one of the points made in a recent staff association document (FAUSA, 1982). In the FAUSA paper, a distinction is drawn between the managerial connotations of staff development (aimed at the achievement of institutional goals) and the personal, professional development of the individual. One of the policy proposals states, in part, that:

> "... an adequate statement of policy on staff development must recognise that staff development in universities is a matter for individual concern ..."

This matter of the academic freedom of an individual staff member, and the extent to which it can be compatible with a management orientation, is of obvious importance. Imrie (1981) in writing of the need for staff development policies in higher education, sets the discussion in the context of freedom and control. Drawing on the work of Millett (1978) and Patching (1979) it is argued that scholarship demands management, and that staff should move toward increased self-management in response to calls for greater accountability. However, the ways in which individuals will behave in an organisation are determined to a significant extent by the reward system (overt and covert) which operates, and the policy regulations which act as indicators of institutional expectation. Certainly, the idea that institutional policy is vital to successful professional development practice figures prominently in the appropriate literature.

The HERDSA (1980) statement on the professional development of academic staff included a definition of the term. There it was stated that:

> "... it is an inclusive term which involves the provision of institutional structures within which there are opportunities for staff to use to the full their individual talents, and to develop in ways which maximise the achievement of institutional goals."

There is a similar, and even greater, emphasis on the importance of institutional policy contained in the Report of the AVCC Working Party on Academic Staff Development (AVCC, 1981). The document lists ten elements which would be contained in any comprehensive institutional policy: these elements are aimed at improving the "effectiveness" of staff, both probationers and permanent members.

Johnson's (1982) Report is not principally concerned with the wider description of staff development, but in his evaluation of support units he refers indirectly to the importance of institutional policy, and the question of individual and institutional development:

> "... the object of the enterprise ... is not the welfare of units, nor the welfare of academic staff for their own sakes, but the better health of our educational and research institutions, the better education of our students, the advancement of learning."

Outside of universities, Lonsdale (1980) has acted as co-ordinator of a statement on the professional development of staff in colleges of advanced education. Here, a very clear link between individual and institutional development is described. In the guideline policy statements it is described how staff performance and development is related to institutional reward systems, and later a call is made for a clear statement of professional development policies and the ways in which these relate to institutional goals and values.

The literature which has been described so far relates to Australia, but similar opinions, statements and sentiments occur in New Zealand, U.K. and U.S.A. For example, NZAUT (1979) has published a policy statement relating to professional development of academic staff which parallels the HERDSA statement in many respects. In U.K., Piper (1975), Piper and Glatter (1977), Billing (1977), Hewton (1979) and Matheson (1981) have all described and discussed staff/professional development in terms of the dual needs of staff and institution and the ways in which these might be co-ordinated. Institutional policy is seen to be critical. Francis (1975), Richardson (1975) and Centra (1978) are typical of authors within a North-American context, and here again we find the importance of institutional policy and practice referred to.

In summary then it appears that there is a strong consensus that effective staff/professional development is largely dependent upon the existence of appropriate institutional policies.

The remainder of this paper describes a survey of institutions in Australia and New Zealand, the rationale for the survey questions and some of the survey conclusions.

THE SURVEY

Data Collection

The collection of information (which was sponsored jointly by NZCER and HERDSA) was effected via a questionnaire which was sent to Australian and N.Z. institutions of higher education in 1981. The first stage of the survey consisted of a letter from the Director of NZCER which

(a) introducted the survey with reference to document collection and questionnaire response

(b) requested copies of the principal documents for the 1981 calendar year: e.g. Calendar, Handbook, etc.

Acknowledgement letters and follow-up letters were sent, and shortly afterwards the second stage was implemented. This was based on a questionnaire (described below) which was sent to the Registrar of Australian and N.Z. institutions. Again, acknowledgement letters and follow-up letters were sent. The table below summarises the outcome of the questionnaire collection.

Table 1

Questionnaire returns from institutions

Institutions	Number of Institutions	Questionnaires Completed
N.Z. Universities	7	1
Australian Universities	19	12
N.Z. Colleges	23	20
Australian Colleges	76	49

(The response from N.Z. Universities is disappointing but not unexpected. The questionnaire invitation was discussed by the N.Z. Vice-Chancellors' Committee: N.Z. Universities then declined the invitation to respond to the questionnaire.)

The Questions

The questionnaire was comprehensive in its coverage of matters which are normally subsumed under the heading of staff/professional development. Two broad areas were surveyed by a wide variety of questions; namely Career Development and The Work of the Academic Staff Member. For the purposes of this paper a selection of "key" questions was made, on the basis that these would provide an overall picture of policy within an institution. These questions are précised below, and the rationale for the choice is outlined: the numbers of the questions are the same as those of Table 2. (References to relevant statements in the literature are not made for the items: the material already referred to contains evidence consistent with the items chosen.)

A. Career Development

1. Is there a policy for limited term appointments?

   Individual development will obviously be affected (in one of a number of ways) by the potential length of the appointment. It is a signal from the institution about attitudes toward institutional goals (and flexible response to changes therein) and individual growth.

2. (a) Probation: Are there probationary appointments?

   Probation provides an opportunity for the particular appointment to be reviewed, and is a signal that an appointments procedure is not looked upon as infallible.

   (b) Probation: Is there an inservice programme probationary staff are required to undergo?

   An inservice programme can be viewed as a development of the potential which was identified at appointment, in line with the particular demands of the position.

3. Is it institutional policy for the Head of Department to provide support for new staff in the form of - (8 categories specified: reduced teaching loads, assistance with research/obtaining grants, etc.)

   (a) A formal requirement.
   (b) Head's discretion.
   (c) No specific provision.

   The concept of "development of potential" is similar to that described under 2(b), with the added implication of induction into a department.

4. Are HoDs responsible for ensuring that probationers experience a wide range of teaching, assessment and administrative experiences?

   The rationale is similar to that of 3 above, and is also related to the development of potential identified at appointment.

5. If tenure is not confirmed after a probationary period, is there an appeals procedure?

   A systematic appeals procedure is a signal to staff that the institution is prepared to examine its "managerial" procedures in relation to individual cases, and to take specific circumstances into account.

6. Which of the following functions is the HoD specifically charged with?

   (a) Arranging for the professional development of staff.
   (b) Evaluation (and appropriate action) re teaching and research in a department.
   (c) Induction of new staff members.

   The role of the HoD is crucial in the translation of policy into practice (see e.g. AVCC Report, p. 26), that is in a managerial sense as well as the provision of academic leadership.

The specification of particular functions sets the broad institutional expectation.

7. Are new HoDs "prepared" in any way for their new responsibilities?

   The extent of the preparation is a signal of the degree to which the expectation referred to under 6 is supported by institutional policy.

8. (a) Promotions: Are unsuccessful applicants advised as to why they were not successful?

   Advice to unsuccessful applicants is in the nature of formative assessment, and provides an opportunity for staff to work on areas of relative weakness and improve performance. In times of financial stringency, all promotions become normative (i.e. competitive) to a significant extent; but the feedback process is nevertheless useful in the extent to which it highlights relatively weak areas.

   (b) Promotions: Is there an appeals procedure available to unsuccessful applicants?

   The "infallibility" argument once more: see 2(a) above.

9. (a) Research/Study Leave: Are academic staff entitled to apply for paid leave of absence?

   This procedure provides an opportunity (potentially at least) for staff to improve their effectiveness and develop as individuals.

   (b) Research/Study Leave: Is there any evaluation of the benefits derived from study leave?

   This procedure would imply a concern with the extent to which staff have benefitted individually, and also suggests an interest in how the institution benefits.

B. The Work of the Academic Staff Member

Responsibilities of an academic staff member include, at least, teaching, research, administration and consultative work (see e.g. NZAUT (1979) and HERDSA (1980)). The presence or not of committees concerned with the standards of these elements, and the extent to which periodic appraisals are carried out are signals to staff regarding the importance attached to these activities within an institution. The whole issue of accountability is relevant, though there is no opportunity to discuss this in detail here.

1. (a) Teaching: Is there a committee concerned with teaching standards and/or the improvement of teaching?

   (b) Are there policies and/or procedures for the periodic appraisal of teaching in your institution?

2. (a) Research: Is there a committee ...?

   (b) Research: Is there a periodic appraisal ...?

3. (a) Administration: What provisions are there to enable staff staff to develop skills ...?

   (b) Are there policies/procedures for the periodic review of the work of Departments/Schools?

4. Consultative Work: Is there a policy, e.g. with reference to personal and institutional remuneration?

RESULTS OF THE SURVEY, AND DISCUSSION

Table 2 gives the proportions of the institutions responding who met the criteria implied by the key questions. Scanning the Table indicates the relative "strengths" and "weaknesses" of the institutional staff development policies. Some of the main features of the Table are as follows.

Career Development

Item 1. Policy on limited term appointments is a common feature of Australian institutions.

Item 2. While probationary appointments are a common feature of all institutions, there is very little by way of inservice programmes for the support of probationers in Australia. (The situation is somewhat different in N.Z., by virtue of the fact that all new staff at Technical Colleges/Institutes are required to attend a co-ordinated series of Tutor Training programmes during the initial years of their appointments.) Given the emphasis commonly placed on induction programmes for probationary staff in the relevant literature (e.g. AVCC Working Party Report, 1981) this would seem to be a weakness in development policies.

Item 3. Very few of the institutions surveyed made it a formal requirement of an HoD to provide support for new staff: via departmental mentors, feedback of teaching performance and the like. The role of the HoD has to be crucial in setting the tenor for the induction of a new staff member into a department. It is arguable that a comprehensive staff development policy should include such a formal requirement.

Item 4. In a similar fashion, few institutions have policies which ensure that HoDs arrange the duties of a new appointee to include a wide range of experiences. While many heads make such arrangements, the *ad hoc* nature of the procedure does not make for systematic policy.

Item 5. While the majority of Australian universities report the existence of an appeals procedure for unsuccessful probationers, this is not the case for colleges in Australia and New Zealand.

Item 6. The colleges surveyed are more specific in their charging of HoDs with the responsibility for staff development, teaching and induction than are the universities.

Table 2

Proportions of institutions meeting the policy criteria

	Australian Universities	Australian Colleges	N.Z. Colleges
Career Development			
1.	.75	.65	.40
2. (a)	1.00	.80	.90
(b)	.00	.10	.80
3. (a)	.08	.06	.25
(b)	.60	.52	.44
(c)	.34	.31	.27
4.	.17	.14	.35
5.	.75	.29	.25
6. (a)	.17	.63	.85
(b)	.33	.67	.90
(c)	.58	.71	.90
7.	.17	.31	.55
8. (a)	.33	.49	.25
(b)	.33	.43	.10
9. (a)	1.00	.88	.95
(b)	.67	.53	.55
The Work			
1. (a)	.42	.39	.60
(b)	.25	.31	.50
2. (a)	.58	.51	.35
(b)	.33	.20	.05
3. (a)	.25	.33	.75
(b)	.33	.47	.40
4.	1.00	.73	.50
Numbers	12	49	20

Item 7. The importance of the role of the HoD has already been referred to. Given this importance, it is striking how few of the surveyed institutions (in Australia in particular) have any programme for "preparing" new incumbents.

Item 8. Only a minority of institutions take a formative view of promotions applications and provide feedback to unsuccessful applicants. An even smaller minority have a policy which encompasses an appeals procedure.

Item 9. Nearly all institutions make provisions for staff to apply for paid leave of absence for research and study, and a majority carry out an evaluation of the benefits which staff derive from such leave.

The Work of the Academic Staff Member

Item 1. Rather surprisingly, given the interpretation of "staff development" as "improving teaching" which is often made, only a minority of the institutions have a committee concerned with teaching standards and/or its improvement. Similarly, policies for the periodic appraisal of teaching are not common.

Item 2. A small majority of the Australian institutions have a committee concerned with research standards and its improvement: only a small number carry out any periodic appraisal of research (and the figure is especially small in N.Z.).

Item 3. Most N.Z. colleges surveyed have provisions under which academic staff may work to improve the effectiveness of their administrative skills. This is not the case for the Australian institutions. Many of the institutions have no specific provisions for the periodic review of the work of their Departments or Schools.

Item 4. The great majority of Australian universities and colleges surveyed have policy relating to the consultative work in which academic staff may become involved. Only half of the N.Z. colleges have such policy.

There is by now a substantial body of literature which concerns itself with the professional development of academic staff. Much of this writing is concerned with models and prescriptions for appropriate staff development policy. While there must obviously be differences of opinion concerning detail, there does seem to be a broad consensus as to what is required in an adequate policy: an interpretation of this requirement is implicit in the "key" items, described above, which were extracted from the questionnaire. The extent to which institutions fall short of these policy requirements is indicated by the survey data and the associated discussion.

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MAKING APPROPRIATE USE OF THE PROBATIONARY PERIOD: A MODEL FOR ACADEMIC STAFF

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INTRODUCTION

Few tertiary institutions in Australia appear to be taking full advantage of the probationary period in the confirmation of academic appointments. The model proposed in this paper emphasises the importance of the preparation of a detailed position description which indicates more clearly the expectation that the institution has of the appointee and the skills and abilities which are to be appraised. The specific areas to be evaluated and the weighting allocated to each is negotiated with the appointee and revised periodically during the probationary period.

Because there is an inherent conflict with appraisal for formative and summative purposes, the model provides a strategy for formative development and evaluation of the appointee to be undertaken with the support of a group of experienced peers; summative evaluation is left to those responsible for the supervision of the staff member. Provision is made for the data generated by the formative processes to be available to the supervisors when arriving at their decision to confirm the appointment.

An expected outcome of the model is the likelihood that the process of formative evaluation will be accepted by peer groups and adopted by them to assist with their own personal growth and development.

BACKGROUND

As an integral part of its strategic planning process my Institution has established a Steering Group whose task has been to prepare a preliminary discussion paper on a number of 'Staffing Issues' which have been identified as critical to the achievement of the Institute's Goals and Directions.

That Committee has been concerned that attention be directed towards ensuring and developing the quality of staff.

The Steering Committee has commented on four aspects of staff development:

(a) Staff appraisal and review (including staff probation and discipline);

(b) Staff rewards;

(c) Staff development; and

(d) Flexibility in staff appointments.

This paper is concerned essentially with staff appraisal and the effectiveness of the probationary period.

Probation

Most tertiary institutions provide for a probationary period for new appointees. This period is usually three years although, following the Report of the AVCC Working Party on Academic Staff Development (July 1981), some institutions appear now to have moved to a longer period before granting tenure.

The AVCC Working Party stated that in its opinion the three year probationary period (in effect 2½ years)

> "is too short to allow most staff to develop sufficient expertise for such important judgements to be made. A standard probationary period of five years (with the decision on tenure after four years), if accompanied by a comprehensive staff development policy in each university, would be much more effective in improving staff performance than the existing procedures for introducing new staff into the profession. A four year period prior to judgements on tenure should allow most staff to establish their research and show some output therefrom and give them sufficient time to profit from advice and assistance with teaching and establish their own effective style." (p. 32)

The more recent Report by the Senate Standing Committee on Education and the Arts (1982, p.57) confirms the move in Australian universities to longer probationary periods. This Report, in my opinion, is an excellent contribution to the sparse Australian literature on the appointment and appraisal of academic staff. It does, however, little more than point to the need to review academic performance. It will fall to others, including Education Units in the institutions, to develop strategies and models which will provide the new member of staff with the support and critical feedback needed to enable him to demonstrate his abilities by the end of the probationary period.

The challenge for all tertiary institutions is to make effective use of the probationary period. A comprehensive induction programme based on the developmental needs of the staff member implies an appraisal of his abilities and skills. In this respect the Report of the AVCC Working Party is a landmark in the Australian literature on Staff Development.

Bergquist and Phillips (1977) believe that

> "Faculty evaluation remains perhaps the most sensitive area for many faculties and the evaluation process a source of

> constant distress for responsible administrators. Even with the best of intentions significant career decisions continue to be made on the basis of rumour, hearsay and innuendo; the faculty member remains the passive victim of a process over which he has no control." (p. 56)

It is suggested that it has been convenient for Australian tertiary institutions to pay scant regard to the induction and probationary processes for academic staff. It is my belief that there appears to be little or no supervision given to academic staff and the word 'supervisor' may not be recognised or even accepted by academics.

The Roles of an Academic

The academic appointed to a teaching position in a tertiary institution is required to undertake duties and accept responsibilities which are varied and in some cases extremely complex. Moreover, it is very difficult to judge whether the academic is successful in some of these activities.

H.C. Jones (1973) has attempted to describe the various roles undertaken by the tertiary teacher.

> "The appointment of new staff is one of the most critical management functions in a university, partly because of the key role of academic staff in all aspects of university life, and partly because security of tenure places a heavy responsibility on recruitment decisions. The success or failure of the selection process has to be viewed in relation to the wide range of teaching, research, administrative or related functions on which academic staff are usually engaged." (p. 156)

Jones identifies the following wide range of complex related functions required of an academic teacher:

> "lecturing, tutoring, seminar leadership; curriculum design and development; personal and educational counselling of students; marking, assessing and examining; and related administrative tasks such as the preparation of reading lists." (p. 159)

The co-ordination of these activities requires that the teacher be an efficient manager.

The above list relates only to the role of the academic as teacher. In addition the academic is expected to engage in research and scholarship, community work, and administration such as participation in committees.

Little wonder that most institutions appear to have had difficulty in devising systematic forms of appraisal to assist the academic during probation and to determine whether tenure is to be awarded.

The Position Description

It is suggested that the preparation of a detailed position description is the logical starting point in producing a change in attitudes within the institute to the probationary period.

The position description provides an excellent opportunity for the institution to convey to applicants, and to remind existing staff of, the relevant values held by the institute and its expectations of the appointee and his supervisors.

At the same time the position description, by setting down the expectations it has of the appointee, should indicate very clearly those areas in which the appointee will be appraised in order to gain tenure.

Conflict with Appraisal

There is, however, an inherent conflict with appraisal for formative and summative purposes. The staff member will be required to undergo a comprehensive and thorough induction process which calls for formative appraisal accompanied by appropriate development programmes.

The evaluation of the member of staff for purposes of granting tenure is a summative process. It is a process of appraisal for reward or penalty. In this case the reward is the granting of tenure.

Most literature on appraisal suggests that the institution must choose between appraisal for formative and summative purposes. This paper seeks to establish that there is a proper place for both forms of appraisal in the probationary process and beyond. The AVCC Report seems to confirm this concept when it recommends that evaluation should be undertaken for both formative and summative purposes.

A Proposed Model

A model which has been suggested to me by Dr Frank Hiob provides for use of both formative and summative appraisal at appropriate times during the probationary period.

The model proposed by Hiob is based on the Bergquist-Phillips model known as 'Portfolio Evaluation'. Hiob suggests that the Bergquist-Phillips model is an approach which may need to be modified. This model he believes "should be regarded as a starter-motor where the rest of the automobile should be crafted by the would-be owner according to his own specifications."

In fact, Bergquist and Phillips expect and hope that their Portfolio Evaluation model will be modified by individual staff, heads of department and administrators to meet their own unique needs and demands.

What is unique about the model is that it places responsibility on the appointee to provide documentary evidence of his suitability for tenure.

Portfolio Evaluation has three essential features (Bergquist and Phillips, 1979, pp. 56-57)

1. "A series of categories is established which determine the areas in which the evaluation will take place." This, I believe should be derived from the position description.

2. "A set of documents which indicates the quality of performance in each category is collected."

3. "A review committee, which works closely with the person being evaluated, is established to assist and review the entire process."

It is "a structured, organized procedure which enables an individual faculty member to assume primary responsibility for determining what methods will most sensitively assess his performance." (p. 57)

The Portfolio process usually involves ten separate steps:

"1. selection of a portfolio review committee;
2. definition of portfolio categories;
3. determination of relative weightings which each category is to receive;
4. survey of available documentary sources and precedence;
5. determination of plans and schedules for the collection of documents;
6. identification of documentary procedures;
7. review of documentary procedures by the committee;
8. collection of documents;
9. formal organization, review and approval of the portfolio; and
10. review and revision of the portfolio procedure." (p. 57)

Bergquist and Phillips offer the following benefits of the portfolio procedure:

"1. the faculty member is given a chance to examine her professional performance with the assistance of a review committee composed of people with diverse perspectives; this provides a vehicle for constructive feedback that is rarely available to any of us;

2. the faculty member can obtain valuable advice concerning areas which need improvement from the members of the review committee; these individuals are not only knowledgeable about [the faculty member's] professional performance but are also committed to support improvement efforts;

3. the faculty member is given an opportunity to devise methods that are particularly sensitive to areas of activity which may not be accessible to traditional methods of assessment;

4. the faculty member is assured of an equitable, documented review by a committee, rather than a sometimes arbitrary review by an individual or by a committee without documentation;

5. the faculty member can use the documents that have been produced for her own career advancement, for they provide her with a distinct advantage over other faculty who do not have access to an extensive and well-organized portfolio;

6. the faculty member can integrate her portfolio with a comprehensive professional development program.

The institution which makes extensive use of portfolios will enjoy the following benefits:

1. the portfolio provides an equitable, open process for the review and evaluation of a faculty member's professional performance;

2. the portfolio procedure is one which will hold up under both legal and union review;

3. the portfolio provides valuable guidelines in the development of services for faculty members who wish to improve their performance;

4. the portfolio procedure enables a number of campus constituencies to become actively involved in the professional performance of the institution's staff;

5. the portfolio procedure can be used to encourage the more general collection, analysis and use of information about the functioning of the institution; and

6. the faculty portfolio can serve as a model and catalyst for the reform of the evaluation of students and administrators.

More generally, portfolio procedures can promote new levels of trust between faculty, administrators, students and others involved in the review process. The flexible yet thorough procedures which are employed in developing a portfolio enable a review committee to make an accurate assessment of the professional achievements of a faculty member and at the same time provide a faculty member with valuable information concerning areas in which improvement is needed. The portfolio procedure is compatible with the publicly acknowledged missions of most colleges and universities to promote the open and rational analysis of people, programs and problems and, as such, cannot help but reduce the animosity which so frequently accompanies most professional evaluation." (pp. 63-64)

Portfolio Review Committee

Bergquist and Phillips indicate that the new appointee and his head of department should be on the committee. It is useful to have one or more of the following:

(a) another faculty member of comparable status;

(b) a member of the tenure and promotion committee;

(c) a student;

(d) a person from outside the institution such as a member of a course advisory committee or an academic from another institution;

(e) a consultant to the portfolio process. (p. 57)

This last, the consultant, might be required for all committees, particularly in institutions which lack experience in the process and where staff may be lacking in the personal skills required by the process.

The composition of the committee will be determined mainly by the areas to be appraised and the relative weightings to be given to each. For most newly appointed academics, teaching will be an important area requiring appraisal and development. Thus there might be several staff members appointed to the committee to assist with this aspect. Later in the probationary period, research or community work may become more important and given higher relative weightings.

The portfolio review committee, which is really a support group, would assist by negotiating with the appointee the order in which the various skills and abilities set out in the position description would be appraised, the relative weightings to be given to each, and agree upon the programme of induction. A general programme for several years might be agreed in outline followed by more detailed programmes for the first year and the first semester. The programme could always be varied by mutual agreement and would become a flexible working document designed to meet the needs of the appointee and the teaching department.

The institution will, of course, require summative reports on the progress of the staff member at regular intervals from the supervisor with a final report towards the end of the probationary period. The documents in the portfolio should be capable of meeting that requirement.

It should be possible for the staff member to provide the Head of Department or Dean of the Faculty with clear evidence of his progress in teaching and other areas.

The review committee has a twofold function. First it is to assist the appointee by providing feedback of information on mutually agreed areas to assist him improve his performance in those areas. The expectation is that this process will lead in time to acceptance by the group of the appointee who will be judged by them to be worthy of confirmation in his appointment. This is the second function of the group. Currently, it is unusual for an academic not to be confirmed at the end of the probationary period. With the aid of a support group it should be most unlikely for the appointee not to be confirmed. Depending on the initial background, experience and knowledge of the appointee, the probationary period should be flexible. Some new staff may require five years of support and development before gaining acceptance by their peers and tenure; others may require shorter or longer periods. The probationary period should be a positive, non-threatening process and the length of the period should not be of primary concern.

The use of the model has several obvious advantages. One important advantage is that it should be an effective means of persuading staff, other than those on probation, that feedback of information to assist in the improvement of performance (i.e. formative appraisal) is a continuing process and applies equally to staff who have already gained tenure.

Thus, it should be possible to effect a change in the attitudes and practices of all academic staff of an institution in a fairly short time. Assuming a five per cent turnover of academic staff each year, it is likely that from ten to fifteen per cent of the academic staff could be involved in the process by the end of the first year. Thus the model could be considered for use where an institution wishes to appraise all staff.

Need for Training

The model described above presents excellent opportunities for staff in Education Units to provide assistance.

Support groups will need to be trained in the skills needed. As mentioned above, a consultant or facilitator will need to be included in most review committees, particularly in the early stages. Depending upon the rate of new appointments, it seems likely that Education Units would have a steady call on their services.

Because of the complex nature of the role of the teacher, it is suggested that Education Units will be likely to be called upon to assist by arranging formal programmes in the various facets of teaching for the probationer and perhaps other members of his teaching department.

Even if they are not called upon to assist, Education Units must be proactive and prepared to offer support to review committees and probationers. In this respect it will be important for the management of the institution to convey this expectation to the staff generally and to the Education Unit in particular.

Conclusion

This paper has suggested a flexible model for appraisal for formative and summative purposes which in the long term could have a significant impact on the quality of teaching in tertiary institutions.

Responsibility for the review process and the preparation of the portfolio rests primarily with the member of staff being appraised. This should ensure that it is not seen by him to be a threatening process.

The model is likely to have a strong impact on supervisors and others in the faculty. They have a responsibility to assist and develop those whom they have appointed to their staff and to declare when they believe they are ready to be given tenure.

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EVALUATION AND PROFESSIONAL DEVELOPMENT:

THE PROBATIONARY PERIOD - A CASE STUDY

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This paper describes and evaluates attempts within one university to link evaluation of professional performance with professional development. As the development of evaluation procedures is still in progress there is time, and I feel a professional obligation, to raise questions concerning evaluations.

EVALUATION WITHIN A UNIVERSITY SYSTEM

To be an academic means constantly to be exposed to scrutiny by peers, students, and the public, indeed to be constantly evaluated. But there are three distinct occasions when formal evaluations take place; at the selection stage, when tenure is considered, and when an application for promotion is assessed.

When an academic applies for a position past and present performance are evaluated; referees' reports are sought, written and assessed; publications are weighed and judged; previous professional experience and likely future contributions are appraised. The decision to appoint is made by peers from within the university system and the procedure in arriving at the decision is unchallenged. The applicant has initiated the evaluation and no justification of the outcome is either given or expected.

In many universities tenure is granted easily, based on the belief in a stringent selection system. Staff have regarded granting of tenure as a formality which follows appointment after a decent interval, rather than as a reward following satisfactory performance. This is changing; an overall reappraisal of the candidate's likely contribution to the university is replacing the quasi automatic change of status to tenured staff member.

An application for promotion carries with it an evaluation of the applicant's overall performance, mainly research, but also teaching and service. Again, it is a collegial evaluation. And, as when applying for a position, publishing research or applying for research grants, the lecturer initiates the action and implicitly accepts the rules, including the evaluation procedures.

Evaluation for selection and promotion, then, are initated by staff members when they are 'ready' for it; they are voluntary. Evaluation for tenure is not: it follows university rules, a university timing, and is voluntary only in so far as a probationary period is part of the initial contract between university and staff.

Changes in the tenure system are occurring at a time when external pressures are promoting more visible accountability measures by universities. Among such measures are evaluation and staff development activities. The 1981 AVCC Working Party Report, Academic Staff Development recommends, *inter alia*, an induction program for new staff, also "explicit procedures for formally advising probationary staff on their performance at the end of each probationary year" and "a formal evaluation program for all staff involving systematic and regular review of performance at the end of each probationary year. (Recommendations 21 c,d)

This report though widely noted within staff development units and staff associations had initially little impact on the university community. The recent (1982) report by the Senate Standing Committee on Education and the Arts, Report on Tenure of Academics, caused more public and more threatening debate. Academics as represented in their staff associations perceived the threat as a threat to academic freedom and autonomy: and evaluation, or rather decisions which might follow evaluations, was at the core of it. The report does not only advocate a longer than customary probationary period with evaluation of performance of probationary staff, but supports the introduction of regular formal reviews of academic performance for all non-professorial staff. In addition, annual consultations between staff and their head of department or dean are recommended to provide an opportunity for a discussion of each staff member's achievements during the past year and an exploration of difficulties encountered.

Both AVCC and Senate reports advocate evaluation and appraisal of all staff. Thus any introduction of regular evaluations for a sub-group of staff, like probationary staff, is perceived as the thin end of the wedge. Evaluation, which was hitherto self-initiated or, if not, regarded as a mere formality, is taken out of the private sphere of negotiations between an individual staff member and the institution, to become an issue, potentially affecting all staff. Hence the mistrust, agitation, and indignation which attempts to introduce evaluation measures are causing.

The AVCC report advocates both a system of evaluation and a system for professional development. The connection between the two needs to be emphasised, demonstrated and institutionalised.

THE CASE OF THE UNIVERSITY OF QUEENSLAND

Probation

In August 1981 - following the release of the AVCC report but not as a result of it even though the Chairman of the Working Party was the Vice-Chancellor of the University of Queensland - the probationary period at the University of Queensland was extended from three to five years to allow the University better judgement of research ability and performance of the appointee. By the same token, the appointee is allowed more time to demonstrate that research ability and performance are up to standard. The emphasis is on a demonstration of research ability and performance, in line with university practice in Australia in general, and with the University of Queensland's special endeavours to increase its share of research grants, research students, and research output.

The appointee is informed of University expectations and rules, particularly the terms and conditions of appointment and the length of the probationary period. The policy document on appointment and reappointment of academic staff states:

> "The basic criterion of the granting of tenure is that the staff member has performed his teaching, research and other duties to the satisfaction of the University and in accordance with the reasonable expectations held by the University at the time of the offer of his probationary appointment."

While the "reasonable expecations" are meant to have been aired in the selection interview and to have been expressed in the letter of appointment, what constitutes satisfactory performance of teaching, research and other duties is not specified. Nor is there any mention of expectations or provisions for teaching development, or any other professional development.

The probationary period provides the opportunity to assess the staff member's performance and progress over a number of years. The head of department is now required to provide annual written evaluations to the staff member with copies to the Deputy Vice-Chancellor (Academic). Heads are also expected to discuss "any perceived weakness with the staff member during the probationary period". Early in the third year the performance is reviewed by the appropriate University committee and, finally, during the fourth year.

At the time of appointment there is an expectation, a promise, of future performance based on past achievement. At the time when tenure is considered, fulfilment, or at least partial fulfilment, of that promise needs to be established. How does the probationer get to that point, how does s/he know whether s/he is achieving this goal?

The changed probationary arrangements make necessary a more systematic, more comprehensive, more frequent, and more reliable appraisal throughout the probationary period. The aim of these appraisals must be to pinpoint those aspects of performance where the probationer can improve so as to ensure satisfactory performance by the end of the probationary period.

The development of a system of teaching evaluation

In May 1982 the Education Committee of the University's Academic Board invited the Tertiary Education Institute to develop instruments for the evaluation of teaching "to focus initially on staff during the probationary period". The wording of the letter did not specify the purpose of the evaluation: whether evaluation was primarily to be conducted to supply evidence for decision-making (summative evaluation) or whether evaluation was conceived as leading to self-improvement (formative evaluation) and ultimately to the satisfactory performance which the University expects of its tenured staff. But it is safe to assume that the University was concerned with summative evaluation only as no policy for staff development existed.

The Institute had previously conducted evaluations for individual clients and sections of the University and had offered a variety of staff development activities for academics of all grades. A credo had evolved and I based the work on the development of instruments for the evaluation of teaching on this: there can be no staff development without preceding evaluation (mostly self evaluation), and there should be no evaluation without opportunities for staff development.

Generally, evaluation and staff development are connected rather informally.

1. Informal evaluation by self assessment, or by feedback solicited from or volunteered by students and colleagues leads to informal self development through discussion with students, colleagues and/or Institute staff about alternative approaches in teaching.

2. Informal evaluation leads to voluntary participation in formal, organised staff development activities, seminars, workshops etc.

3. Formal evaluation, ie evaluation based on established criteria using a standard format leads to informal development. For example, an application for promotion failed. On inquiry the applicant is informed that more in-depth research or more demonstrated excellence in teaching (rarely) is necessary. The staff member thereupon tries to meet these criteria.

With the introduction of a formal compulsory evaluation of probationary staff, a fourth connection between evaluation and staff development seems possible:

4. Formal evaluation, eg annual appraisals of probationary staff, leads to formal development through university sponsored and endorsed staff development programs in teaching and research.

The general wording of the Education Committee's request to develop instruments for the evaluation of teaching provided the opportunity to establish the link between evaluation and staff development quite formally and openly, and to legitimise the role of staff development in the absence of an explicit University policy.

Most of the Institute's evaluation and professional development activities were related to teaching. The brief of the Education Committee also focussed on teaching, thus making it possible for the Institute to link its resources for staff development to the evaluation.

In order to satisfy both the Committee's expectations and our own professional standards, I decided in consultation with colleagues to develop instruments which would aid the promotions and reappointments committees in decision making - their summative function - and which would also allow the staff member the opportunity to establish areas where improvement was necessary - the formative function of the instruments. The formative aspect would then be linked to professional development.

I planned five steps:

1. literature review and discussion with staff from other institutions
2. developing the instruments
3. piloting the instruments
4. evaluating the instruments for reliability and validity
5. evaluating the effectiveness of the instruments for inducing change in teaching.

The institutional climate included positive elements (official support for evaluation by the Administration) and negative elements (some vocal individuals at all levels and the Staff Association). Taking the climate into account I adopted the following principles for the development of instruments:

1. that all staff concerned be consulted, ie probationers as the staff to be evaluated; heads of departments as the designated evaluators; the student union as representative of students who were to be one source of information on teaching; and the academic staff association, union of employees, as representative of all academic staff;

2. that, if possible, a consensus be achieved as to the evaluation procedures; what was going to be evaluated, by whom, how, for whom;

3. that all steps in the development of procedures be open and discussed;

4. that co-operation of staff in the development of evaluation instruments be voluntary;

5. that evaluation results during the development stage of the instruments be confidential to the staff members.

A questionnaire sent to all staff on probation and heads of departments resulted in a clear-cut decision in favour of accepting H. Murray's (1980) division of teaching into classroom presentation, course management, course content, and extra-curricular teaching, thus *in toto* covering 'teaching' in its widest meaning. The questionnaire was accompanied by a letter which set out in detail my intentions in the development of the instruments.

I processed the questionnaires and discussed the results in separate meetings with staff on probation, heads of departments, representatives of the academic staff association and the education committee of the student union. The meetings with the first two groups affirmed that

- teaching in its widest meaning should be evaluated;
- more than one source of information on teaching should be used;
- more than one method of obtaining information should be used.

We agreed that the evaluation instruments should not only be effective but also be cost-effective, that it was not desirable to create an expensive, cumbersome and time-consuming evaluation system.

As a first instrument I suggested development of a questionnaire to students to evaluate classroom presentation and course management. Subsequently instruments or procedures for peer and self evaluation would be developed.

STUDENT EVALUATION OF TEACHING

Developing the instrument

The questionnaire to students was designed to serve three purposes and provide information for three groups. (1) The first section would contain a set of standard or core items applicable to most or all teaching situations; the results could be submitted to the head of department as a basis for discussion of teaching performance during the annual appraisal interview. (2) The second section would consist of only one question (Scriven, 1981), asking for the lecturer's overall effectiveness as a university teacher, disregarding personality and subject. The results could be passed on to the promotions and reappointments committee. (3) The third section would provide space for additional questions which would be chosen by individual staff members from an extensive item bank. This would enable them to tailor-make the questionnaire to their specific teaching situations and their specific needs for feedback. Responses in this section, and additional comments on the lecturer's strengths and weaknesses as a university teacher would give them private feedback on teaching strengths and weaknesses. These responses and comments were to constitute the formative part of the questionnaire.

The questionnaire was designed to be easy to complete - all ratings were on one side, comments on the back; quick to fill in - approximately 10 minutes; easy to process.

The draft questionnaire with order form, item bank, instructions for administering the questionnaire, letter to students and explanatory letter to staff were sent to staff on probation, to some participants in workshops with a known interest in getting feedback from students, and to heads of departments for information; comments were invited. Only a few revisions had to be made.

The availability of the questionnaire to all staff was advertised and it was stressed that information from all three sections of the questionnaire would be confidential to the individual staff member.

Piloting the questionnaire

Thirty-seven staff members, ranging in rank from part-time tutor to head of department sent in order forms for questionnaires. Forty-eight subjects with more than 80 class groups were involved, and over 2,200 students returned questionnaires.

In order to ensure comparability of results the evaluations were conducted under specified conditions in the last two weeks of Semester 2,

1982. The results were processed in November[1], in addition to statistical analysis the comments on the back page were either typed verbatim or, in the case of large classes or many comments, categorised and then typed. At the end of the University examination period each staff member evaluated received the results: a table with the number and percentage of respondent for each item, the average student rating for each item, and the staff member's own self-evaluation for each item; and the typed comments. I invited staff to contact me for discussion of the results, in particular of any discrepancies between self and student ratings.

Evaluation of the questionnaire

An analysis was carried out to determine how well the questionnaire discriminated between staff and how well between items[1].

Section 1 with eleven standard items worked well. Students discriminated between items and did not rate in a pattern of disagreeing or agreeing with all items. On the other hand there was considerable amount of consensus among students on specific items, ie the spread of ratings on any one item tended to be small. Student mean rating of the standard items was highest for the less complex items and lowest for the more complex ones: "The lecturer stimulated my interest in the subject" and "The lecturer motivated me to work hard". Staff, too, in their self evaluations were lest certain in these two areas.

Section 2 contained only the overall effectiveness question; ratings were on a 1-7 scale, with 1 being very poor, 4 satisfactory, and 7 outstanding. Students used the whole scale in their ratings, but the mean ratings fell into a narrower range of 3.9 to 6.6. Only two lecturers each in one of their classes, received a mean rating of below 4. Teaching in 17 classes was rated between 4.0 and 4.9, in 50 classes between 5.0 and 5.9, and in nine classes 6.0 or higher. The average of all student ratings was 5.3, the average of all class means 5.1.

The following factors were examined to determine their influence on the ratings: class type, ie tutorial, lecture, prac/studio/laboratory/clinic; class size; responsibility for subject; level of subject; elective vs compulsory subject; day vs evening classes. Because of the small sample size no generalisations can be made. Results from the analyses suggested that class size and class type may have had some influence on the ratings.

Section 3 contained up to 12 items from the item bank. Of the 68 items to choose from all but four were chosen at least once. While the item bank could be extended there is no reason to assume that it needs to be changed substantially. Many students availed themselves of the opportunity to make additional comments on the staff members' strengths in teaching and on areas of improvement.

Discussions with staff about their evaluation results showed that the questionnaire had performed a valuable service function for them in providing them with a useful and comprehensive opinion about their teaching.

Follow-up

In early 1983 I sent a detailed report to the Education Committee, pointing out, *inter alia*, the importance of looking at student evaluation results in conjunction with other data, and of looking at student evaluations of more than one subject and in more than one semester. Participants in the scheme received a brief report which would put their own results into a context; and TEDI News, the Institute's news sheet distributed widely in the University, also reported briefly on the results.

The first cycle of the first instrument for the evaluation of teaching thus completed, I revised it slightly. The first section now contains only nine standard items (two items had often been rated 'not applicable' and were therefore moved to the item bank). An additional questions asking for a subject rating was introduced as many students commented on the subject as well as the teaching. Results for that question concern the department, not university committees.

The new questionnaire is being piloted in Semester 1, 1983.

Evaluating the effectiveness of the questionnaire in inducing change in teaching

What influence did the evaluations have on current practice?

While from the Education Committee's point of view the effectiveness of the questionnaire had been established, one other important aspect still needs consideration: will staff act on the evaluation, modify their teaching practices or approaches?

If evaluation is meant to lead to systematic self-improvement a number of factors or conditions must be present, on both the institutional and personal level.

On the institutional level,

1. professional development activites must be available;
2. official encouragement, support or sponsorship for development must be given, either by heads of departments or by the Executive, the 'administration'.

On the personal level,

3. a need for development must be perceived;
4. a way must be shown to meet that need;
5. professional development activities must be perceived as cost effective.

At the University of Queensland the situation is as follows:

1. Availability of professional development activites

On the basis of the evaluation form and expressed preferences by staff I planned a comprehensive program of staff development, offered for the first time in 1983. The year's program started off in February with a three-day series of workshops on general aspects of course/session

165

planning and teaching, followed by more specific workshops on aspects of teaching, assessment, and communication.

Questions in Section 1 of the questionnaire had dealt with session organisation, clarity of explanation and of communication of requirements, lecturer's performance in stimulating student interest in the subject and motivating students, and attitude towards students. All of these aspects were at least touched on in the initial workshops. Three items of the standard items correlated highly with overall effectiveness in teaching (Section 2): clarity of explanation (0.58), stimulation of student interest in the subject (0.60), and motivating students to work hard (0.54). These areas in particular were discussed, practised where appropriate and will be followed up in further workshops during the year.

The number of staff enrolled in the three-day workshop program was 80. Of these about a quarter were lecturing staff, mostly new or untenured.

2. Official support for professional development

Advertising of both evaluation and staff development program been through heads of departments, and also through personal invitation. Many heads actively supported the program by encouraging their probationary and temporary lecturing staff to attend workshops and, in the case of clinical teachers, allowing time off from other duties.

The University itself, though not 'sponsoring' the program, had noted it; indeed, its submission to the Universities Council stated that programs for probationary staff were being run to assist new staff in their teaching role. At a conference for new heads of departments organised by the Vice-Chancellor's office shortly before the commencement of the year's program, reports were sought from us about both evaluation procedures and staff development for probationary staff.

While staff developers can interpret these encouraging signs as an implicit approval of staff development, staff to be 'developed' are still confused about the University's policy. As training is not mandatory - is there more than lip-service being paid to the desirability of excellence in teaching?

3. Need for development

In the absence of any staff obligation to act upon evaluations, staff must perceive a need for development before they will consider any change.

I tried to build into the questionnaire system means by which this could be achieved. Research (Centra, 1973, Carroll, 1981) has shown that staff are more likely to change their behaviour and attitudes if there is a discrepancy between their self-perception and student rating, ie if students rated them less favourably than they expected. I asked all participants in the evaluation to fill in the same form as they handed out to their students and to mail it separately to me. (A separate paper will examine the relationship between student and self rating. It is worth noting that staff did not tend to rate themselves more highly than students did; I presume because the results were not used for decision making.)

On the report form which contained the student responses, a column also presented student means for each item and beside it staff self ratings. Thus it was possible and in fact unavoidable to read and compare both evaluations. The letter accompanying each report invited staff to contact me and discuss the evaluation, in particular discrepancies between student and self assessment.

About a third of staff availed themselves of the opportunity even though the Christmas break had started. Some have reported changes in their teaching strategies and organisation since.

This, then, was the second means of increasing the likelihood that changes would be implemented: as Cohen (1980) has shown, evaluations followed by discussion with a consultant are more likely to produce change than evaluations digested by the staff member alone.

A third strategy to increase the likelihood of action was to write for all participants a short report on the general evaluation results which enables them to compare their own ratings with those of the group. A rating of 6 on the overall effectiveness question assumes new importance when one realises that only nine teachers received a 'grade' of 6 or higher out of 79 class evaluations; or that a 4, although described as 'satisfactory', was not the average mark of this group.

Built into the questionnaire was a section which explicitly was designed to provide feedback to the lecturers on areas of their own choice with the intention that the lecturers would act on the results. Of the 68 items in the item bank, the following items were chosen most often: "I have developed a good understanding of the field"; "I have developed interest in the subject"; "I have learned to think critically". These items are directly related to course organisation, teaching strategies and ability to get feedback from students. Again, they were catered for in workshops on getting feedback from students, on assessment and on large and small group teaching skills.

Similarly, the next group of items which were often chosen represent areas of interaction between staff and student, of interpersonal and presentation skills; they are also covered in various communication workshops, small group and large group teaching workshops.

4. Ways to meet the need

Even though staff might perceive a developmental need they will have to be shown effective ways of dealing with it. In the interviews which I conducted with about a third of the staff evaluated, we addressed perceived 'problem areas' directly, analysing the situation in which they occur and discussing possible alternative approaches and strategies. For some a discussion was sufficient to initiate change; others also wanted references to literature or needed participation in workshops where some of these approaches could be practised.

I invited some staff with high student ratings to discuss why they thought that students had rated them highly on stimulating student interest and in motivating students. Their own professional growth, and mine, was promoted through sharing their experience, and indeed, making use of their expertise in later staff development sessions. Positive results, too, lead to a conscious self-appraisal and reflection of what it is that distinguishes good teaching.

5. Cost effectiveness of staff development

Professional development activites take time. For staff to participate in them, they must perceive the sessions as cost effective, as worth their time. For the less experienced lecturers these activities provide an opportunity to measure themselves against peers; to discuss and admit to areas where skills and confidence are lacking; to acquire confidence in their own competence and ability to grow.

For others, less concerned with gaining satisfaction from teaching and/or with teaching better, staff development activities are not cost effective: attendance does not bring with it external reward, nor does evaluation of teaching bring either negative repercussions or reward.

At this stage it is too early to make general statements about the effect of the evaluations. Indications are that some staff are acting on the evaluations. At the end of Semester 1, 1983, the first full semester after the evaluations, interviews with staff will be conducted and a more definite statement about the effect of the evaluation and about the staff development program accompanying it can then be made.

PEER EVALUATION OF PROFESSIONAL PERFORMANCE

The questionnaire to students referred only to classroom teaching and course management. The annual appraisal of staff on probation requires evaluation of overall performance, including all aspects of teaching. The Head of Department in consultation with colleagues is asked to evaluate the probationer's competence in other areas of teaching too, namely content and extracurricular teaching, as well as in research/scholarship and service. The next step after a questionnaire to students on aspects of teaching should have been an instrument for peer evaluation of teaching.

It is more difficult to link staff development and evaluation in areas other than teaching performance and organisation, and attitudinal change. Yet we are attempting to do just that. The new mandatory annual appraisals of staff on probation on all aspects of performance is making the development of guidelines or a form for the annual appraisal more urgent. The form which we are currently developing is based on the following principles:

1. Evaluation of performance needs to relate to the explicit institutional or departmental expectations of the probationer.

2. The staff member to be evaluated submits all the evidence s/he thinks is appropriate to support his/her case (including results from the student evaluations of teaching).

3. Any rating of the staff member's performance in teaching, research and service must refer to evidence on which it is based.

4. Any rating of overall performance must indicate what weight is given to each of the teaching, research and service components.

5. For each area, eg teaching and research, an indication needs to be given as to how, if at all, the staff member might improve his/her performance or attitude in the coming year.

6. If an improvement, or certain progress towards a negotiated target is considered necessary, it must be made explicit where the staff member might find help to improve, or reach the target.

7. While the Head of Department takes the responsibility for the ratings and comments on the form, colleagues in the department must be consulted. Their signatures must be on the form as well as comments to the responses. This makes the evaluation/appraisal more a peer than a superior evaluation.

8. The appraisal/evaluation should be open, ie the staff member being appraised should know and be able to comment on the statements made about him/her.

This form is still in development and has no official status. It has been scrutinised by a number of heads of department, and was, indeed, developed in discussion with heads.

The inclusion of departmental expectations for the probationer, of areas in need of improvement or concentration, of facilities and persons available to assist the probationer are new to any form used for evaluation in the University. But they seem to be regarded as reasonable, even as desirable, not only by us, but by heads and staff themselves.

Indeed, if annual evaluation during the probationary period is to be more than an aid for decision-makers; if it is to be an aid for the probationer, then professional development must follow evaluation, and the next year's evaluation must be based on how well the professional development opportunities and responsibilities have been taken up, and how much progress has been made. If this cycle continues throughout the five years of the probationary period there is every reason for the probationer to be confident that in the end s/he will meet the expectations of the University.

Meanwhile, several crucial questions remain unanswered:

1. What is the minimum acceptable rating for teaching effectiveness?
2. What is the weighting given to teaching in the overall evaluation?
3. What, specifically, are university expectations of new lecturing staff in the areas of teaching, research and administration/service?

CONCLUSION

The introduction of the five-year probationary period and the system of annual appraisals by heads of departments of the probationers has introduced compulsory, regular and formal evaluation into the University.

The AVCC report (1981) points out the importance of a synchronised staff development and evaluation program. The lack of an official explicit endorsement of staff development activities accompanying evaluation might well be regarded by staff in this University, then, as an indication that the purpose of the evaluation exercise is not their development, but to provide evidence to the 'administration', evidence as to who can be denied tenure. This mistrust and fear might well be alleviated if the other suggestions from the AVCC Report were adopted, namely

> "1. That each university should review
>
> (a) the terms of its letters of appointment to ensure that academic staff are given explicit statements of the university's expectations about performance.
>
> ...
>
> 2. That each university should develop a declared staff development policy incorporating -
>
> ...
>
> (b) a significantly reduced teaching and administrative load for all staff in their first year of probation.
>
> ...
>
> (e) the introduction of an incentive program or reward structure designed to encourage effective staff performance, particularly in the teaching role."
>
> (p.xi)

The introduction of compulsory annual appraisals and the development of instruments for the evaluation of teaching preceded support for staff development activities. In the probationary period there is a unique opportunity for demonstrating the interrelatedness of evaluation and professional development. So far this link is being maintained on a voluntary basis by staff, unsure of whether there is any tangible benefit for them in improving teaching.

Once it has been openly acknowledged that professional development opportunities must complement any evaluation, we can say:

Evaluation for professional development.

NOTE

1. I gratefully acknowledge Geoff Isaacs' assistance with the computing work.

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CHAPTER 5

REVIEWS OF INSTITUTIONS, CURRICULA, TEACHING METHODS

On the Australian educational scene reviews are becoming increasingly common and public. While they are experienced by many as ominous exercises threatening their own professional autonomy and competence, they may also be regarded as a vehicle for professional growth. Before an evaluation is initiated at any level, be it institutional, curricular or in the classroom, the purpose of the evaluation must be clarified. Clift and Black ask this important question, "Why should I evaluate?". Their paper describes the process of clarifying goals and objectives for four separate institution reviews in New Zealand.

The question "Why should I evaluate?" was answered in Imrie's and Pearson's paper, "Curriculum changes in a university department": a problem was perceived and a solution sought. The local problem in the sociology curriculum at Victoria University of Wellington will interest the sociology teachers. Of interest to a wider group are the problems *per se* and the procedures adopted to solve them. The process is described in terms of Hewton's 'working party approach' and uses the concepts of 'insider-outsider', here a member of the department concerned and a member of the local education unit. Reading the paper one is convinced that the participants in the review would have benefited from it through professional growth and increased satisfaction with the course.

Prosser took a different approach from Imrie and Pearson in his review of the use of television in a first year undergraduate physics course. He examines the process used, where the author started from a review of available and appropriate evaluative procedures and adopted an approach based on deliberations with everyone concerned. The value of his paper for those conducting or considering reviews themselves lies in his description and critical comment on the establishment, conduct and reporting of a review concerned with only one element in a curriculum. And here, too, there is no doubt that the lecturers involved in the review reassessed their own teaching and strove to improve their competence.

WHY SHOULD I EVALUATE?

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The New Zealand Educational Development Conference held in 1974 identified evaluation as an "essential and integral part of the whole process of skilled teaching, effective administration, programme or curriculum development, and educational reform" (p. 223). Yet, three years later, the 1977-78 Review of Teacher Training, in acknowledging the efforts of Teachers Colleges to evaluate their programmes, described the activity as haphazard. One reason for this situation is the different conceptions one can have of evaluation, thus making it difficult to "provide a concise statement which we believe would satisfy staff if they were to ask the question, 'Why should I evaluate?'" (Clift, 1981). The situation is not unique to the New Zealand situation, and has been well summed up by George Geis in his contribution to Chris Knapper's book, If Teaching is Important.

> "Most of us feel ambivalent about the evaluation of instruction. Notwithstanding some hesitancy because of our lack of sophistication about mathematics and measurement, we may generally endorse evaluation as a "good thing", along with concern for the environment and a desire for world peace. Yet we recognise that evaluation in education has been half-hearted and poorly planned, and has resulted in the production of a threatening rather than an optimistic climate." (p. 1)

If we are to heed the advice of Geis, then it seems that an adequate evaluation plan must begin from the statement of a clear evaluation objective. This question of purpose was approached by a sub-committee established by the New Zealand Teachers Colleges Principals' Conference in 1979. Their response was to state three purposes of evaluation:

(a) To evaluate the efficiency and effectiveness of teacher education

(b) To evaluate individual programmes for in-college action

(c) To communicate informed judgement to interested professional and lay groups about conditions and results in teacher education.

Such statements are extremely vague and do not answer the question, "Why should I evaluate?"

Statements at the same level of generality are to be found in the public statements as to why colleges set about to evaluate their programmes.

Perloff, Perloff and Sussna (1976), in their review of programme evaluation, suggest that this uncertainty as to purpose is "one of the reasons why we have problems in being evaluated, in designing evaluation studies, and interpreting the outcomes of evaluation research" (pp. 569-70).

In describing the current state of evaluation, Cronbach (1980) recalls that in 1969 he and Suppes considered evaluation as decision-oriented research. He now believes that an evaluation cannot produce such 'facts', it can but contribute to conclusions or fresh perceptions: that is, an evaluation study cannot stand alone. For it to have impact, it must be designed as part of a follow-through experience. Such an experience calls for a discussion or judicial phase, during which conflicting or ambiguous evidence can be debated by those most affected by the results. For such a phase to be successful and productive, it is imperative that those taking part have a clear understanding as to the purpose of the evaluation and of the rationale for the design and data interpretation.

This paper considers the stated goals for four separate institution reviews and compares these with what the staff perceive as desirable outcomes for review activity.

METHOD

The evidence for the reported study was collected as part of a meta evaluation (Scriven, 1969) of four institutional reviews. The first phase of the meta evaluation set out to describe the primary evaluation. To achieve this, an 'Information Record' was developed around the major tasks in the conduct of an evaluation. These tasks were taken from the American Joint Committee on Standards for Educational Evaluation (1981).

Having described the primary evaluation, the second phase was to gather information which would enable 'judgement of worth' to be made. This information was gained predominantly from group interviews (see Table 1), supplemented by questionnaires sent out prior to the interviews.

Table 1

Sample

College	Number of staff involved	Number of groups*
A	33	10
B	35	7
C	23	6
D	47	8

*The groups ranged in size from 2-9. The ideal size was found to be approximately six, as this allowed the session to fit into a time-scale of 50-60 minutes.

The prime purpose of the questionnaire was to obtain a record of individual involvement in the review.

The group interviews combined the ideas of M.J. O'Neill (1981) and those from Lonsdale's 'Ideation Phase' of the Modified Delphi Technique (Lonsdale, 1974), the process which enables a large number of individuals to be seen in a relatively short space of time and a large number of ideas can be put forward. As the process does not allow for discussion, there is limited pressure for conformity and no pressure to maintain group cohesiveness.

The procedure has three phases:

(1) Brainstorming of the questions,
(2) Clarification, and
(3) Rating of responses.

The research project was described first to the participants, including how the information collected would be used. The questions were then presented one at a time. After a question was shown, and explained where necessary, as many ideas as were forthcoming were written on sheets where they could be seen by all participants. When all the ideas were written up, clarification and elaboration could be asked for with a minimum of discussion.

Having listed all the responses to the questions, the participants were then asked to place an 'O' alongside any response they personally did not agree with. Alongside the remaining responses, the participants were asked to place a number from 1-5 indicating the degree of importance they would give to that response.

Three questions were presented to the group during the interview. The first of these questions aimed to focus the group, and dealt with evaluation in general and the benefits one would hope to attain, both for the individual and the institution. The other two questions dealt more specifically with the exercises in each College, the benefits that had been attained, and any changes in the procedure that could be suggested.

The information for this study was gathered from the responses to the first question:

> "What benefits would you hope to see emerge from an evaluation carried out in the College?"

RESULTS

All four of the Colleges provided a statement as to the aim or goal of their respective views (see Appendix A). In all cases, these statements were at a very general level, and no attempt was made to analyse them into specific objectives for the evaluation by the evaluator/s, that is the person or group "responsible for the evaluation design, the taking on of "the staff", the overall administration, the analysis of results, the interpretation of the data, and the final report" (see Barber's (1973) definition of 'investigator').

The attempt to elicit from staff a more explicit statement of evaluation objectives produced responses that could be grouped under a series of headings (Table 2).

Table 2

Categories of response

An improvement in Public Relations
An improvement in Teacher Education
An improvement in the quality of classroom teaching in the schools
A clarification of the goals of the College
Better use of resources
Greater awareness of evaluation
Improve morale
Identify weaknesses and develop strengths
Improve relationship with the schools
To improve the corporate life of the College
An opportunity to respond to social change
Create an atmosphere for change
An opportunity for staff development
A clear statement of what is happening in the College at the present time

Each statement was rated, based on the frequency with which it was raised by different groups within any one College.

Two categories of objectives - a clear description of what is happening in the College at the present time, including a clarification of goals, and an opportunity for staff development - appeared in the top quartile of group responses in all four Colleges.

Two further categories of objectives - public relations and improvement in classroom teaching - appeared in the top quartile of group responses in three out of the four Colleges.

Clear description including clarification of goals

The objectives appearing under this heading fall into what Davis, Alexander and Yelon (1974) term 'describing the current status' of the programme, including the administration envelope within which the programme functions. From such a description, staff saw benefits such as:

- identification of strengths and weaknesses in the current programme
- to increase understanding of individual roles
- to judge whether goals are being met

* to bring tensions to light and unmask faults
* to enable everyone to see how the College operates
* to increase awareness of the perceptions of different groups in the College

Opportunity for staff development

The benefits arising in this category were:

* improving the individual's self-confidence
* improving working together
* an opportunity to meet and experience new ideas
* an opportunity to sharpen own perspectives and philosophy
* a chance to converse and debate with colleagues
* stimulation

Public relations

The benefits grouped under this heading included:

* closer relationship with the teaching profession
* better communication between College and schools
* improved public image of the College
* increased credibility with public, schools, etc.

Improvement in classroom teaching

Under this heading, the benefits were seen as arising from changes in the pre-service programme as a result of the evaluation.

DISCUSSION

Three out of the four Colleges used the word 'evaluation' in describing the nature of the review. However, not one of the four Colleges elaborated on what they saw as the specific objectives or benefits of such an evaluation.

The responses obtained from staff suggested that they had a multiplicity of aims, or at least of the benefits, they would like to see emerge from such an activity as evaluation. In general, their focus was on localised concerns and issues. The exception was the group of benefits they would see for the teaching profession as a whole. It does seem that staff in general appreciate the need to understand their programme, the context within which it operates, and how that programme is valued in a given setting and from a variety of perspectives.

Staff want to learn about their activity. Such learning is not gained from reading a report, but rather from the individual's involvement in the exercise. Clift and Imrie (1980) have argued that the first stage in this learning is a stimulus of interest. Such a stimulus will arise from discussion of the Colleges' desire to evaluate, and the development of the terms of reference for the evaluation. It is then most important that this general interest is focused. This is achieved only when the learner is engaged in activity to identify the objectives of the evaluation. Not one of the reported Colleges engaged the staff in this focusing of interest.

A number of writers, notably Perloff, Perloff and Sussna (1976), Glass and Ellett (1980), and Stufflebeam and Webster (1980), have attempted to categorise the different orientations that people can have toward evaluation.

Stufflebeam and Webster believe that the study of alternative approaches is important in helping evaluators "to consider and assess optional frameworks which they can use to plan and conduct their studies" (p. 5). It seems that understanding of the framework within which the evaluation has been designed is most important also in helping the evaluators communicate their intentions to their audiences.

The alternatives suggested by Stufflebeam and Webster include pseudo-evaluation approaches, such as public relations and politically controlled studies; quasi-evaluation approaches, such as accountability studies and management information systems; and true evaluation, which ranges from accreditation studies to illuminative studies.

In their article, they argue that these alternative approaches call for different methods and collect different information. If this is so, then it is not surprising that, if the audience's orientation is, say, for a true evaluation and what occurs is a quasi-evaluation, the worth of the evaluation will be seriously questioned and a resistance experienced in the efforts to follow through with the implementation of results.

APPENDIX A - AIMS OF THE INSTITUTIONAL REVIEW

College 'A'

"To carry out an evaluation of the organisation, structure and activities of the College, the evaluation will cover the following specific aspects of College life:

A. Response to the stated goals of the College (the goals were enunciated)

B. Courses offered and the appropriateness

C. Quality of teaching

D. Experience and progress of students, including the effectiveness of courses and teaching practice

E. Management of personnel and resources

F. Co-ordination of other institutions and relationships of the community

G. Corporate life of the College"

College 'B'

"To seek ways to improve pre-service programmes."

College 'C'

"To evaluate and identify ways in which programmes, procedures, structures and courses might be altered to meet the needs of teachers and children in the 1980s and beyond, to change what needs to be changed, and confirm what is seen to be worthwhile."

College 'D'

"To 'develop' an institutional statement of what we should be doing now to evaluate our present practice against this statement to implement changes that may be required."

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CURRICULUM CHANGES IN A UNIVERSITY DEPARTMENT: REVIEW, PRINCIPLES, PROCEDURES AND OUTCOMES

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INTRODUCTION

The proposed amendments to course regulations which came before the Faculty of Arts, Victoria University of Wellington, in April 1983, marked the culmination of the first part of a curriculum review in the Department of Sociology. This paper sets out the experiences leading to these changes and to other outcomes. The experiences and the roles of the authors of this paper, one of whom is a staff member of the Sociology Department, the other of the Teaching and Research Centre, are considered with reference to an analysis of educational change (Hewton, 1982) which, however, was not available when the Review was initiated and planned.

THE REVIEW

The Review was initiated by a letter from the Convener of the Sociology Department's Curriculum Review Committee (one of the authors - DP), to an 'outsider' (BI) from the University Teaching and Research Centre (UTRC). The UTRC has a principal role as an 'academic development unit' (AVCC, 1981) and has conducted evaluations of Sociology courses in previous years. The authors, therefore, have the roles of 'insider' and 'outsider' used by Hewton (1982), and discussed later.

The letter (on behalf of the Curriculum Review Committee) identified as 'main problems' the following:

1. The need to switch back to six-credit core courses at 200 and 300 level but retain some balance between teaching the 'basics' of Sociology whilst retaining flexibility of student options.
2. The current and future teaching of theory and methods at 200, 300 and Honours levels.
3. Improving the teaching of core courses so that student numbers are retained/gained for future courses.
4. Differing motivations and skills among staff.
5. Workload of staff members.

The letter was accompanied by a report prepared by the Committee, setting out background and considerations for these problem areas.

Discussion between BI, DP, the two other staff members of the Committee (the non-professorial Chairman and a Professor) and a student representative indicated that, corresponding to the problem areas, the following points appeared to be significant.

1.1 The implications of a major in Sociology have reference to the significance of core courses and the minimum number of credits.

2.1 A Sociology programme of studies should provide a coherent development of skills and understanding.

3.1 The field of Sociology is expanding, and courses (core and options) may need to develop accordingly.

4.1 Assessment procedures also need to be reviewed.

5.1 Staff workload should also be reviewed systematically.

The Review was planned as 'intentional evaluation' in the sense that solutions to problems would be developed and considered; also the process of evaluation was intended as a learning experience (Clift and Imrie, 1980). With these intentions, the strategy related to the experiential concepts described by Steinaker and Bell (1979) as being relevant to learning and to evaluation, viz. *exposure, participation, identification, internalisation* and *dissemination*.

In the sense that all of the staff had approved the terms of reference of the Curriculum Review Committee and the intention to invite the collaboration of the 'outsider', then the staff had experienced *exposure* to the setting up of the Review. Following this, the series of individual discussions with all academic staff was intended to develop experiences of *participation* and of *identification* of problems and possible solutions for the Review.

During this period the Curriculum Committee held a staff meeting to discuss staff workload. The convener introduced the 'outsider' to the meeting. The discussion clarified assumptions and provided opportunity for different points of view. Detailed minutes of this and all subsequent Committee meetings were typed and distributed, thereby providing continuity for the Review experience.

Such meetings provide for vital evaluation experiences of

(a) *exposure* to new information, new ideas and different points of view;

(b) *participation* in group experiences of problem solving;

(c) *identification* of priorities for staff and student benefit;

(d) *internalisation* of facts, concepts and principles to develop awareness of issues and implications.

In later meetings the experience of *dissemination* occurred when staff evaluated their experiences of the review, made decisions and thereby accepted responsibility for implementing these decisions.

REVIEW PROCEDURES

In this section a brief account is given of the principal procedures used in the Review. Other considerations for appraising teaching are discussed by Clift and Imrie (1981) and for evaluating degree courses by Roe and McDonald (1981).

In developing the procedures outlined below, careful consideration was given to the identification of trends and to perceptions of omission, i.e. content or method not experienced as part of the course or programme. The principal events of the Review were:

a. Individual semi-structured and confidential discussion with staff to allow for different perspectives and experiences. Basically the structure corresponded to the 'main problems' (1-5) and the associated points (1.1-5.1) mentioned earlier. These discussions were particularly useful in helping the 'outsider' appreciate the attitudes of 'insiders', as well as in identifying areas of agreement and disagreement.

b. A questionnaire used with 200-level courses, based on SEEQ (Students' Evaluations of Educational Quality) developed by Marsh (1982) originally in the context of social sciences. The questionnaire was adapted slightly by small changes in terminology and by providing three open-ended questions.

c. For each course, for the period 1977-81, details of enrolments, grades and passes were sent to the staff concerned. If they wished, staff were invited to comment on any aspect of these records. This will be repeated in 1983 to monitor assessment.

d. In the individual discussions with staff, the opportunity was taken to explore the concept of sociology as a discipline in terms of the minimum requirements for a major, and of the significance of theory and methods courses.

e. Content appraisal was discussed and there was ready acceptance of the proposal that course outlines should be circulated. There was rejection of the idea that course outlines might also be sent for comment to appropriate staff in Departments of Sociology in other New Zealand universities.

'The right way to tackle the problem'

Halfway through the review period covered by this paper, one of the authors (Imrie, 1983a) was asked to write a review of the book Rethinking Educational Change (Hewton, 1982) in which the role of the academic adviser is discussed as an 'outsider' working with a group of staff as 'insiders'. Hewton's 'case for diplomacy' is very well presented and makes an important contribution to awareness of the need for management of change. He writes from first hand experience as a member of an outsider group: in his case an academic development unit at the University of Sussex.

Hewton identifies the working party approach as "the right way to tackle the problem" and derives a set of operating conditions "which make no claim to being either universally necessary or sufficient." For the purpose of this paper, these operating conditions are considered and commented on by the 'insider' (DP) and the 'outsider' (BI) from their different perspectives. The Curriculum Review Committee is considered equivalent to the working party. There are eleven conditions:

1. "A problem or need is identified following discussion between a member of the department and member of the Teaching and Learning Support Programme."

(BI) Problem areas had already been identified by the Curriculum Review Committee before I was approached as a member of the University Teaching and Research Centre. Subsequently discussion with DP (as Convener of the Committee) did identify new and related needs or problems, as indicated in the Introduction.

(DP) The Department has had a Curriculum Review Committee for approximately six years, although it meets irregularly according to requirements. At times of proposed curriculum change the Committee is very busy, at other times it is virtually in recess. The Committee was called upon to examine the issues set out in the Introduction following a general staff meeting which included discussion of course credit ratings and a proposal for the introduction of a new methods course (subsequently SOSC 3XX). I had already had considerable contact with BI through my personal interest in improving my own teaching skills. BI was well known to departmental members and there was general staff agreement that his 'outsider' presence would be useful. In the initial discussion with BI any problems of internal staff disagreements could be raised with a 'neutral' party; also some insight from an 'outsider' could be incorporated into projected needs of the Department. This proved to be the case and problem areas were refined accordingly after the Convener (DP) reported back to the Curriculum Committee.

2. "The support of the head of department is sought by the programme organiser."

(BI) The elected Chairman of Department was not a member of the Review Committee. I decided that my first individual discussion about the Review should be with the Chairman.

(DP) The Chairman was not a member of the Committee so I and the Committee accepted that this would be politic. Such a step was basically a formality as the department has tended to be very democratic in its decision making and the Chairman's position has tended to be an 'administrative' rather than a 'leadership' position.

3. "The matter is discussed by the department group (usually in Committee), resulting in an agreement to initiate a study."

4. "A working party is set up comprising representatives of interest groups within the department together with members of the programme. A member of the department is usually the Chairman of the working party."

5. "The working party may be instructed to report back to the departmental group with the results of the investigation and with recommendations for action, before a specified date."

6. "The departmental group is guaranteed, through an appropriate committee, the final say over which, if any, recommendations should be implemented."

(BI) All of these conditions existed before I joined the working party (Curriculum Review Committee). The Convener (DP) kept all staff fully informed through report documents and full staff meetings as appropriate.

(DP) All the above conditions were already met by existing departmental practices. The practice has been for the Curriculum Review Committee to meet informally, establish policy ideas (it is a purely advisory committee) and then present them to a full staff meeting.

7. "The working party determines its own methodology. This normally involves interviews with a wide range of interested parties and in some instances the use of questionnaires. It has been found that science or engineering departments generally seek statistical evidence in support of findings."

(BI) As described previously, various procedures were used as part of the Review methodology. I initiated these procedures in draft form for modification and approval by all staff before use. Because of the interest in assessment, I arranged for details of course grades (1977-81) to be compiled and then sent them to appropriate staff for information and comment.

(DP) The evaluation procedures created little or no disagreement and there was a high degree of staff cooperation. It was agreed that all teachers of core courses would be expected to share all comments with the department as there was a convention of departmental responsibility for these courses. Optional courses were treated differently. Teachers of such courses were asked to share quantified data with fellow staff members but they could choose not to share qualitative (possibly personal) comments from students about their courses. This strategy met with general approval, but has not yet been implemented.

8. "Faculty interviews are usually conducted by members of the TLSP but sometimes also involve departmental members as interviewers."

(BI) As previously noted, I had individual discussions with all of the academic staff; also a former junior lecturer. I decided to talk to the two professors after the rest of the staff because of professorial responsibility for the 'quality' of the discipline/department.

(DP) This procedure of individual interviews was seen as very desirable by me and the Curriculum Committee. Only very broad conclusions from such interviews were given to the Committee by BI so confidentiality was strictly maintained. A necessary, but somewhat frustrating exercise from my viewpoint - it would have been more than interesting to know these views!

9. "The working party meets regularly (perhaps every two weeks) to consider evidence, review progress, discuss issues arising and decide what further action needs to be taken."

(BI) *Frequent Review meetings of all staff were held to consider progress, discuss issues and make decisions. Important elements of the conduct of these meetings included a blackbloard summary of the 'agenda' and provision of opportunity for everyone to express a point of view; when necessary the meeting was adjourned.*

(DP) *The system of frequent meetings and blackboard summary seemed to work reasonably well, although I often had considerable difficulty as chairman in keeping discussion to the point. Three major difficulties arose:*

(1) *the difficulty of getting all staff members together for all meetings as many would be away on leave, etc.*

(2) *the tendency for some staff members to leave early from some meetings; (both (1) and (2) often produced an unavoidable degree of repetition at meetings, although it had the positive result of constantly reminding staff of the issues at hand).*

(3) *Progress was often somewhat uneven because of different composition of staff present and decision making tended to be frequently provisional. However, this also had positive results because proposals had reached an advanced state of refinement by the time final decisions with a full complement of staff were reached. The ease of reaching at least majority decisions in the final analysis was due to this process in my view, i.e. everybody seemed to feel that all alternatives had had a full and repeated chance of being aired.*

10. "The bulk of student interviews, the preparation of a draft questionnaire, the analysis of data and the preparation of draft reports are carried out by the programme members. This is a crucial condition which allows professional expertise to be contributed, but at the same time enables departmental faculty to remain involved without being too heavily committed."

(BI) *I endorse this. I was assisted in this by research assistant staff of the TRC, so that information could be collated and reported quickly enough for it to contribute to the overall development of experience. This overcomes problems of 'time and resource constraints' which may have prevented progress in the past.*

(DP) *Yes, this worked very well. Results were produced quickly and staff members felt a part of the process of evaluation.*

11. "The final decisions on questionnaire details, statistical analysis, the conclusions to be drawn from them, and the wording of reports remain the prerogative of the working party and its departmental chairman."

(BI) *With the approval of the Committee and consistent with the agreement made with staff, I sent brief factual reports to* *staff on course evaluation, assessment and the 1980-1 graduate survey. An Interim Report was sent to the Convener who then distributed it to staff to be discussed at a Review meeting. In that report I drew attention to issues relevant to the future development of courses and programmes of study in Sociology, together with some general suggestions:*

(a) student development in the first year course (SOSC 101) in terms of study/learning skills;

(b) more systematic use of computing facilities for undergraduate and postgraduate courses;

(c) adoption of procedures for systematic evaluation of all courses, based possibly on SEEQ (Marsh, 1982);

(d) development of an informal structure of student and staff representatives for improved staff-student relations.

(DP) These suggestions were discussed and adopted by the department. If passed by Faculty the course change proposal will come into effect in 1984. The proposal for evaluation was seen as a matter of individual staff responsibility so commitment and implementation will rest there with a possible subsequent Curriculum Committee review next year.

OUTCOMES AND PROSPECTS

Not all of the recommendations for educational change had unanimous support. There was *unanimous* agreement that all 4-credit courses should become 6-credit courses without any increase in content or assessment workload. There was *general* agreement that some courses remain compulsory, but it required a *majority* vote to decide that the new course, Social Research and Practice, should not be compulsory. It is expected that most students majoring in Sociology will take 42 credits or more by taking one or more of the optional courses. This will be monitored.

During the course of the Review, there had been some allocation of workload based on planning considerations adopted after a seminar. At a Review meeting it was agreed that teaching load calculations be submitted for review by the beginning of the August break. Staff are now aware of agreed principles of equitable workload distribution and this is discussed as a staffing matter.

With reference to student experience of sociology courses, a member of staff undertook to organise and coordinate a student representative from each course. These student representatives would be involved in providing feedback about courses and in organising opportunities for 'socialising'.

As part of the first year student experience, in the light of arrangements for first year science students (Imrie, 1983b), it was agreed that planning should take place later in the year so that a student development programme could be incorporated in the first year tutorials. The proposed programme would focus on appropriate study/learning skills.

Assessment is a vital part of student experience at undergraduate and at Honours levels. Apart from the introduction of internally assessed project papers at 300-level and at Honours level, it was proposed that the 'weights' of assessment components should be considered more carefully. When sets of marks are combined (for class sizes more than twelve, say), the *actual* weight of components is likely to be different from the *intended* weight (Fowles, 1974). The staff did not accept that this effect would be significant but it has been agreed that a member of staff would become the computing liaison officer for the department so that mark interpretation procedures could be used with the recently developed University computerised course grading system. In general, the proposition was more acceptable that the weights of assessment components should add up to 90 per cent (say), thereby allowing 10 per cent for professional judgement (Isaacs and Imrie, 1980) of course-related considerations relevant to mark interpretation and grade allocation. At least one member of staff has incorporated this arrangement in course assessment requirements for 1983.

In preparation for the course changes proposed for 1984, future review meetings will consider the content and teaching of methodology at the 200 and 300 levels. The UTRC will assist with course evaluation, with the use of the computerised course grading system for mark interpretation, and also with the planning of a student development programme. To a large extent this will be a service role; further development and monitoring aspects of the Review will continue without the 'outsider'. The prospects for further development are certainly encouraging.

Concluding comments

This paper has considered principles, procedures and outcomes of a review of courses in a Department of Sociology. As a context for appraisal, reference is made to Hewton's case for diplomacy when rethinking educational change. In this regard the relationship of 'insider' and 'outsider' was used to provide comment on the experiences and outcomes of the Review. The case for diplomacy (and development) extends also to insider-insider relationships within a department, and to relationships between department and institution. The latter consideration is, of course, important for facilitating approval of course changes and related matters.

The Review strategy, however, was to provide for a set of learning experiences for insiders and outsiders alike. The learning intention of evaluation incorporated the structure of an experiential taxonomy and provision had to be made for the effect of time. For educational change, review processes require time (and commitment). There are three principal considerations of time which should be considered when planning a review. One is the *duration* of the review, the second is the *time required* for the events of the review (e.g. average time for Review meetings was three hours), and the third is the *timing* of the events. Time is important for collecting, reporting, assimilating and interpreting information, and for making decisions. All of these experiences can be enhanced by the use of appropriate techniques.

Such a review, therefore, provides professional development experiences for academic staff. In this Review, these included utilisation of workload analysis, systematic course evaluation, peer appraisal of content, structured decision making, improvement of student performance, and mark interpretation.

It has been shown that the experiences of the Curriculum Review Committee correspond closely to the working party set of conditions proposed by Hewton. The concept of such a committee, however, goes beyond the scope of the working party in that it has a continuing existence that provides for the vital but often neglected requirement of (educational) change: that of monitoring change and evaluating outcome. Did change proceed as planned? What unexpected problems arose and how were they dealt with? Did the outcomes correspond to the intentions? If not, why not? What still needs to be done?

In affirming Hewton's case for diplomacy, a relevant consideration is the decision to be made about the withdrawal of the outsider. In this Review withdrawal coincided with the discussion of the Review report but was also a consequence of the secondment of the outsider to a position outside the university.

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AN EXAMINATION OF THE PROCESS OF REVIEWING THE USE OF TELEVISION IN A FIRST YEAR UNDERGRADUATE PHYSICS COURSE

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INTRODUCTION

The School of Physics at the University of Sydney has been using televised lectures as a supplement to live lectures in their first year courses for life science students for several years. The quality of and resources required to develop the televised lectures have been increasing during those years. The School is presently in the process of developing a new set of televised lectures for Electricity and Magnetism section of that course. The new set is in colour, there is a substantial amount of outside inserts and laboratory demonstrations as well as graphics. The School is concerned that the resources devoted to the development of the televised lectures is consistent with the overall resources devoted to teaching the topic and that the televised lectures are educationally valuable.

In April 1982 the School of Physics asked the Centre for Teaching and Learning for its opinion on the use of televised lectures.

In this paper I wish to examine briefly a few of the implications of some of the evaluative literature for a task such as this, to describe the review as it developed, the recommendations resulting from the review and finally some issues for review studies of this kind which have arisen as a result of the review.

The focus of the paper, being a review of a review, will be on the process of the review and not its findings. In my examination of some of the literature I wish to draw upon some of the literature specific to the use of television in teaching, and then more generally on evaluation in higher education.

Televised lectures have been and are being used quite extensively in higher education. For example, Oliver (1981) reported that twenty three out of thirty five British Universities surveyed used televised lectures as a supplement to at least some of their chemistry teaching.

In a recent meta-analysis of Outcome Studies of Visual-Based Instruction, the authors concluded that "74% of the studies of student achievement reported no significant difference between visual-based instruction and conventional teaching. No significant differences were also found in 80% of the comparisons reviewed by Stickwell (1963), and in 75% of the comparisons reviewed by Chu and Schramm (1967)", (Cohen, Ebeling, Kulik, 1981, p.34). A little later on they state that "In a typical study, the size of the effect of visual based instruction was quite small .... By most standards, the achievement gains of students taught by VBI are minimal" (Cohen, Ebeling, Kulik, 1981, p.34).

As reported, these results seem to be consistent with previous reviews and indicate that experimental studies do not, in general, significantly favour the use of television, when the criterion used is student achievement.

In a discussion of such finding, Bates (1981) has criticised the predominance of laboratory-controlled experiments in such studies. He argues that it is not surprising that the majority of findings are of no significant differences because

(1) important variables such as quality television program presentation is often ignored
(2) differences in quality between the experimental and control media (e.g. televised lectures, textbook) are not controlled
(3) individual differences in response to different media are not considered
(4) organisational and structural variables (i.e. how the media is to be integrated into and relate to other teaching methods) are often ignored.

and that the findings of such research although often used as a major input into a decision making process are not sufficient for decisions about the continued use of and improvement of such media.

Bates goes on to argue for what he terms Evaluative Research, and that what is required for decision making processes about media is a deliberate and systematic search for accurate and reliable information "to supplement the personal observation and hunches of those making the decisions" (Bates, 1981, p.23). In selecting, analysing and presenting such information the overall educational and organisational context needs to be taken careful account of. The information needs to be about the actual effects of the media and the conditions under which the media are educationally effective. He then argues that such information is likely to include substantial amounts of qualitative information as well as quantitative, and that carefully collected and analysed judgement of the participants in the use of the media should play a large role in judging its educational value.

At the same time, in the evaluation literature, concern has often been expressed about lack of subsequent use of many evaluation studies (McCormack, 1976; Burt, 1976; Black et al, 1976; Nisbet, 1981).

Recently Reid (1978) has been arguing for what he has termed a deliberative approach to the study of curriculum. Reid offers a way of studying curricula which seems to be consistent with the call by Bates for more emphasis on the decision making process in media studies, and for the general problem of making review studies more useful in the longer term. It has often been the case that calls by curricular specialists for greater emphasis on the providing of information for decision making process have included little or no discussion of the process. The deliberative approach described by Reid has been heavily influenced by Schwab's (1969, 1971 and 1973) discussion of "The Practical" in curricular studies. In this approach the emphasis is on improvement of present courses and curricula and on the process of curriculum deliberation. It is argued that curricular decision making does not follow a number of reasonably well defined simple steps. It involves a complex process of defining and re-defining the questions and issues involved, discussion and debate between those involved in the decision making process, careful consideration of the consequences of proposed changes. This implies for Reid that such studies by their nature are problem centered, and should not only "embrace some styles of research .... but should interest itself in all styles of research which may help in the definition and resolution of curriculum questions" (Reid, 1978, p.36). For Schwab and Reid, theory in curricular studies should focus on the means of investigating practical concrete problems, this not being a matter of applying a particular technique, but through discussion and deliberation developing an understanding of the problems and issues involved and identifying and systematically collecting information appropriate to these issues and problems.

More specifically Schwab has suggested that a curricular deliberation committee be established; that that committee have represented on it people with experience and knowledge of the subject matter involved, the learners, the milieu, the teachers and curriculum making. The committee should focus on a consideration of at least the subject matter, the teachers, the learners and the milieu. The committee should first of all consider the effectiveness and outcomes of the present course or curriculum; it should then consider possible changes and likely ramifications and effects of those changes; and only after careful consideration of these two aspects should it make its decisions concerning its actions or recommendations.

Thus we see that experimental studies of use of television in teaching have provided us with little guidance about how and when to use it; that recently there has been a call to rethink the means by which the effectiveness of media are researched and evaluated; a number of curricular evaluators expressing concern for the use to which evaluative studies are put; and an approach in the theory of curricular studies arguing for a more substantial focus on the decision making process recognising the need for eclectic methods to obtain information appropriate for deliberation by curricular decision making committees. The study discussed in this paper has attempted to draw upon some aspects of these perspectives in the establishment, conduct and reporting of a curricular study.

DESCRIPTION OF THE STUDY

In describing the study a framework developed by Boud and McDonald (1981) will be used. They described the stages of an educational consultancy as (1) initial contact, (2) defining the relationship, (3) methods of working, (4) reporting, (5) further action and completion. This framework seems to be quite appropriate for the description of this project.

Initial Contact

The School of Physics invited the Centre for Teaching & Learning (CTL) to attend a preview of one of the new televised lectures. At that preview the CTL was asked if it would like to provide an opinion on the educational value of the televised lectures. After some discussion it was decided that the School of Physics would establish a working party consisting of a member of the CTL, two members from the School of Physics who were the academic producers of the lectures and the Director of the Television Service.

Defining the Relationship

Some time later the Deputy Head of the School of Physics wrote to the Director of the CTL formally advising him of the establishment of the Working Party. After some informal discussions with the other members of the Working Party, the representative of the CTL distributed a discussion paper outlining proposals for the aims of the review, some principles of practice for the review, rationale of the review and some examples of suggested review processes. The Working Party met formally to discuss the proposal and agreed to it. The Deputy Head of the School was also sent a copy of the proposal for his comments.

Methods of Working

At this first meeting suggested information gathering procedures were discussed. The sorts of bodies of information considered to be collected are shown in Table 1.

TABLE 1

Possible Bodies of Information to be Collected

Antecedents:

Student attitudes to physics and physics teaching.
Student background knowledge of electricity.
Printed lecture notes.
TV lectures.
Live lecture lecturers' opinion and attitude to teaching and TV lectures.
Lecture room architecture (e.g. placement of TV monitors etc.).
Academic producers' attitudes to and opinions of the development processes of the TV lectures.
TV Services producers' attitudes to and opinions of the development process of TV lectures.

Transactions:

Live lecture lecturer/student transactions in live lectures.
TV/student transactions in TV lectures.
Student/student transactions in TV, live lectures and independent study.
Student/lecture note transactions in independent study.

Outcomes:

Student achievement as measured by assessment results.
Student achievement as judged by student and live lecture lecturers.
Student attitude to and opinion of TV lectures, live lectures, lecture notes.
Live lecture lecturer attitude to and opinion of TV lectures, live lectures, lecture notes.
Academic producers' attitude to and opinion of TV lectures and lecture notes.
TV Services producers' attitudes to and opinions of the TV lectures.

The bodies of information in the Table have been categorised according to a scheme suggested by Stake (1967). The list is not meant to be exhaustive, but to stimulate thinking about the sorts of information which could be collected. After some discussion of the sorts of information which could be collected in terms of the aims of the review, methods of collecting and sources of this information were discussed and decided upon. These were subsequently amended after further informal consultations with members of the Working Party. The sources and methods used in the study are shown in Table 2.

TABLE 2

Sources and Methods of Review

The Table below summarises the methods of obtaining information about and the sources of that information for the review of the use of Television.

		Methods			
		Observations	Interviews	Questionnaires	Content Analysis
Sources	Live lecture lecturers	x	x		
	Academic producers		x		
	TV Services producers		x		
	Students	x	x	x	
	TV lectures	x			
	Live lectures	x			
	TV lecture scripts				x
	Prepared lecture notes				x
	Original Specifications				x
	Assessment Results				x

It is not suggested that this is an exhaustive list of methods and sources but for the time and resources available for the review it seemed to be adequate. Some elements of the matrix were more thoroughly studied than others. The amount of time spent on the various elements was determined by the sorts of issues seen to be important at the time.

Reporting

During the information collecting phase of the review, short discussion papers were written and distributed to individual members of the Working Party outlining proposals for collecting information and summaries of the information collected. A number of such papers was distributed during the review (about ten in all). These were either commented on in writing by members of the Working Party or discussed informally. Once all the information had been gathered, analysed, reported and informally discussed, a draft report for presentation to the School of Physics was prepared for discussion. At the same time, because planning was starting for the production of a further three magnetism lectures, a preliminary summary of the information was prepared and discussed with the academic producers and the Television Service.

The draft report was distributed to other members of the Working Party and a formal meeting of the Working Party was arranged to discuss the report. As well a copy of the draft was sent to the Director of First Year Studies in Physics for his comments.

A final report was then prepared and submitted to the School of Physics.

Further Action and Completion

Subsequently a seminar was organised for the live lecture lecturers on the implications of the report for their teaching and a meeting was held with the Deputy Head of the School of Physics.

FINDINGS OF THE REVIEW

Although the findings of the review are not particularly relevant to the aim of this paper, the final conclusions and recommendations may be worth stating. (A report summarising the findings and discussing the recommendations is available from the author). These were classified under three headings: (1) the production process, (2) the curricular materials, (3) the teaching process.

Under the production process heading, the major recommendations were: earlier consultation between the TV Services and academic producers, provision of a production assistant, increased use of multi-camera techniques in the TV Services studios, and a more assertive role for the TV Services producer.

Under the curricular materials headings it was suggested that the TV lectures should focus more on experiments and demonstrations and to leave the development of theory for discussion in the lecture notes and the live lectures; that for some demonstrations and experiments a discovery oriented approach should be taken, and finally that the role of the objectives in the lecture notes needed to be clarified (some lecturers felt they should indicate only that material which was examinable, while others felt they should indicate all that the student was expected to learn from the lecture).

Finally, as far as the teaching process was concerned, it was suggested that there may need to be more integration of the TV lecture and lecture note material into the live lectures; that the relatively poor attendance of the Science students needs to be further examined, that a set of notes should be developed by the academic producers for the live lecture lecturers with suggestions of what to include in the live lectures.

ISSUES FOR DISCUSSION

After a consideration of the style of evaluative research appropriate for studying the use of media in education, a general model of studying the curriculum and a case study which has attempted to draw on aspects from the above, a number of issues or problems emerge.

The first of these relates to the aims of such a review. The initial request from the School of Physics was in terms of whether, from an educational (as distinct from a resource) viewpoint, the School should continue with the development of the television lectures. Such a question is quite difficult to answer, because in effect it requires the suggestion of an alternative, that is should the School continue to include television lectures or should it revert to a more traditional lecture structure. As described earlier experimental outcome studies indicate the problems involved in trying to answer the question directly. It is quite possible to examine the teaching process and suggest ways and means by which this can be improved. Thus attempting to determine how well the various aspects of the teaching process are working, why they may or may not be working and how they can be improved is likely to be a more profitable exercise.

In this case it was decided that the various aspects of the teaching process were working quite well, and seemed to be quite coherently related, although a number of areas for improvement were suggested, and therefore from an educational perspective there seemed to be no reason why the present structure should not continue. Whether this structure was likely to be better than any others was not commented upon. The question of reviewing the outcomes of the course leads into issues relating to the information gathering procedures used in the review. Information was gathered which it was hoped would focus on issues raised from a consideration of the stated aims of the review. Various sources of information and methods for obtaining information from these sources were identified. This resulted in a range of information, both qualitative and quantitative, being collected. This information needed to be both acceptable and interpretable by members of the Working Party, if that was to function as a deliberative curricular committee. In the event, the committee accepted and deliberated on the qualitative process information that was collected and was not too concerned about the little amount of quantitative outcome information. Would this have been the case if the review of the process was indicating substantial problems?

Other issues can be raised regarding the functioning of the Working Party as a deliberative curricular review committee. The committee met formally on only two occasions but informally in groups of two or three on several occasions. While the other members were quite interested in the review, a balance had to be struck between organising too many formal meetings and possibly alienating some members of the Working Party and having too few so that the deliberative process did not work. In this case the continuing feedback to other members of the Working Party and the informal meetings and discussions I had hoped would be an appropriate compromise. In the event it seems that the members of the Working Party would have been quite happy to have met more often, and I think the deliberative process may have worked better. There was not as much focusing and refocusing on the issues and discussion as may have been warranted. The response on many occasions was that the other members were quite happy with the discussion papers as they were distributed. I think now more formal meetings may have forced a more critical and continuing discussion of the issues.

The final issue is that of how useful and implementable the report's findings and recommendations were. A major reason for having a working party established was to attempt to ensure that through an appropriate deliberative process between those involved in the development of the television lectures and an outside curricular specialist the findings would be useful and implementable. This necessitated a continuing focus on the context in which the television lectures were being used (e.g. integrated or not integrated into the general teaching process) and on the course as it was actually taught and not as it was supposed to be taught. From subsequent conversations it seems that this aspect of the review has been reasonably successful, and having those involved in the review who were responsible for the present development of the TV lectures was a major factor in this process. But what effect would this have on the summative aspect of the review? Would it have been more useful for the summative aspect to have deliberately sought out some members of the School of Physics who were not involved in teaching in this course, and who were known to be antagonistic to the use of television? So that while the formative aspect of the review has worked quite well, it may be that a sufficiently critical approach was not taken to the summative aspect.

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CHAPTER 6

COURSE DEVELOPMENT

Meeting the needs of the community, satisfying the expectations of students, achieving the standards set by the institution and the discipline can contribute significantly to satisfaction with one's teaching role, i.e. be intrinsically rewarding. Participating in course development with colleagues and outside groups also can be a most potent professional growth experience.

The process of course development can be highly systematised; it can be based on needs studies, on evaluation of previous courses, on expressed demands by client groups, whether students or employers of graduates. In the non-university sectors of tertiary education this process of course development is more open, involves more people and interested parties, and is also better documented. Significantly, all papers dealing with aspects of course development here are by staff in the Technical and Further Education (TAFE) and college sectors.

Nutting in her paper, "Designing new courses for the under-achiever", is concerned with creating a learning environment and a curriculum which will give students self-esteem and useful skills. Students will be more employable by having been taught how to adapt and be flexible.

Laplanche describes in "Implementing curriculum through a democratic process" how a technical course evolves in close cooperation with the industry concerned.

While Astill *et al* in their paper, "Remedial teaching in a tertiary institution", do not describe the development of a whole new course they do demonstrate how remedial courses were developed. Induction and screening tests administered to incoming students at the Queensland Institute of Technology showed that students had gaps in understanding and knowledge of basic concepts in mathematics and science. Departments used different approaches in attempting to overcome the knowledge deficiencies and ensure subsequent success in tertiary studies.

DESIGNING NEW COURSES FOR THE UNDER-ACHIEVER

ROSAMOND NUTTING
TECHNICAL AND FURTHER EDUCATION - QUEENSLAND

The under-achiever has always been of concern to educators. Technical and Further Education particularly has been concerned for the large numbers of under-achieving young people who attempt TAFE courses. The Federal Government has also realized the special needs of under-achieving students particularly during their transition from school to work, and has set aside funding for this purpose. These young people are particularly "at risk" in a society which is struggling for economic stability and in which unemployment is high. The word "transition" refers to the type of funding, rather than to the type of student or to the type of course.

Because of the nature of education for the under-achiever, the techniques for developing courses for them are more complex as well as being more sensitive to the needs of this client group.

If the world of technology continues to develop at the same rate as it is at present, changes to the structure and fabric of our society will continue to occur at a rapid rate in the future. In times of change, two factors become critical to the survival of people in enabling them to cope (particularly those people who are "at risk" in our community). One factor is the self-esteem of an individual; the strength of people's convictions in their own effectiveness determines whether they will even try to cope with difficult situations (Bandura, 1977). The other factor is the degree to which people have developed their skills of adaptability and flexibility to enable them to transfer their skills to other "novel" situations.

TRANSFERABLE SKILLS

> "... transferable skills include skills of reasoning, learning, analysing, problem solving, communication, relating with other people, and so on. Employers do not always readily recognise the importance to them of students possessing these skills, and can usually only approximate a description of them. Course designers must be vigilant in determing appropriate skills ...

> ... We must be careful that we do not produce graduates who are snapshot operators - capable only of emulating performance at a given point of time in the past ..." (Stevenson, 1982)

The Williams Committee (Committee of Inquiry into Education and Training, 1979), the Department of Labour Advisory Committee Working Party (1980), and the Tertiary Education Commission (1981) are drawing attention to the need for educators to develop the skills of flexibility and adaptability in technical workers.

To be functional in the future, skilled workers must learn to be adaptable and flexible and independent learners now (Stevenson, 1982).

The rapid technological change we have been experiencing for the past several decades has resulted in rapid social and cultural change within our society. People learn to handle situations because they have been taught by their parents, teachers, and other significant people in their lives to behave appropriately when a particular situation arises.

In the past, change has been relatively slow so that as a new situation arises, people could adapt their previous behaviours and reactions from known situations and teach children to cope with this new situation with specific behaviours. This method of learning presented no problem and it was relatively easy to achieve compliancy in the learner.

In this era, rapid change has occurred faster than people can learn the new appropriate behaviours to cope with the novel situations that are occurring. We can no longer base our behaviour in these situations on the known. Because of change there may not be a "known" situation to refer to. Hence people of today have no set of appropriate behaviours to deal with the changes that are occurring. Their existing repertoire of behaviours is inadequate.

What we should aim for in education is to teach "process" skills to the learner. These are processes which can be transferred from situation to situation and are appropriate to all of them.

Recently TAFE courses have placed a heavy emphasis on specific behavioural objectives (known behaviours for known situations) and very little on transferable skills. In times of rapid change, this method of course development is outdated and no longer meets the needs of society.

Transition courses are specifically designed for the students "at risk" in the community. The "at risk" student is the one that is most likely to be affected adversely by change, the one mostly likely to suffer stress and anxiety; the one most likely to be unable to cope with the world of the future. Therefore it is imperative that we design courses for these students containing a heavy emphasis on the processes of student learning rather than concentrating exclusively on specific technical behavioural objectives.

TAFE has a responsibility to students to give them the skills which will improve their employability and also to develop in them the processes which will make them adaptable and flexible to be able to transfer their learning into novel situations.

How do we do this?

At a seminar on human learning given by Malcolm Knowles in Brisbane last year, the processes of learning for young adults were emphasized as being the centre of focus in the designing of curricula. He stressed the importance of four factors in the teaching of youth today for the world of tommorrow:

(1) Self-directed learning
(2) Task centred/problem centred learning
(3) Learning fostering curiosity
(4) Learning involving inquiry projects, independent study and experiential techniques.

Putting all this into practice

I refer to a proposed Working Life Skills Program which has been developed for TAFE pre-employment courses and which follows the above philosophy of Knowles. This program is the combination of three subjects: Communication Skills, Social Literacy and Work Adapted Human Movements. Not only does the content emphasize the process skills, but the teaching techniques suggested in the document are designed to initiate learning through the experiential learning model as it has been proposed by David Johnson (1972), and puts into practical terms the philosophy of Malcolm Knowles (1973).

David Johnson (1972) suggests a four-stage cycle in experiential learning: from concrete, personal experiences learners reflect upon and examine the meaning of the experiences they have had in order to formulate a set of concepts or principles. These experiences help in the understanding of these concepts, the learner forms a personal theory which is then tested in novel situations.

Geoff Melling (1978) proposes an experiential model in which three phases (experience, reflection and specific learning) are outlined and become an integrated whole. His model embodies three major principles:

(1) The process of learning should focus on the student's own experience.

(2) The young person's developing adulthood is recognised by giving that person some responsibility for what is to be learned, and how it is learned.

(3) The learning can take place in a variety of contexts under the protection of a variety of agencies.

> "... the individual's experience needs to be followed by some organised reflection. This reflection enables the individual to learn from the experience, but also helps identify any need for some specific learning before further experience is acquired ..." (Melling, 1978)

Experiential learning is based on the following assumptions:

(1) that people learn best when they are personally involved in the learning experience; and

(2) that knowledge has to be discovered by a person if it is to mean anything to that person or make a difference in the behaviour of that individual.

Learning by experience is the process of making generalisations and conclusions about a person's own direct experiences. It emphasizes directly by: experiencing what the person is studying, building personal commitment to learn, and being responsible for organising the conclusions drawn from the experiences. The learning becomes personally meaningful.

Experiential learning procedures are especially useful when skills are being learned. For example, reading how to communicate is not enough to build skills in communication. The student must experience communication and practise good communication skills.

SELF-ESTEEM

Purkey in 1970 examined the characteristics and the development of the self-concept in an attempt to organise existing definitions of it. His composite definition cited the self as a "complete and dynamic system of beliefs which individuals hold true about themselves, each belief with a corresponding value".

Bandura in 1977 went a step further in his definition of self-efficacy being the conviction that one can successfully execute a particular behaviour which is required to produce a particular outcome. He theorises that it is the strength of people's convictions in deciding whether or not they believe they can achieve a certain outcome, that will determine whether they will ever try to cope with a situation. Thomas (1980) calls this a sense of personal agency. Adams (1983) aligns the lack of self-efficacy with the concept of Learned Helplessness.

People tend to avoid threatening situations if their opinions of themselves are that they cannot handle that situation. Where they judge themselves capable of handling the situation, no matter how difficult that situation may be, they are likely to achieve success. Strong efficacy expectations are developed through repeated success; repeated failures lower them particularly if they are experienced early during a course of events.

The individual of particular concern in our changing society is the school under-achiever. Following Bandura's theory, academically successful students have a relatively high opinion of themselves, are optimistic in their general ability, work hard and consistently, are fairly sure of gaining employment in the future, and are liked by others. The under-achievers generally see themselves negatively, and have strong inferiority feelings. These students are not motivated to achieve. Many TAFE students have a long history of not being able to cope with their previous schools' curricula, and this inability to cope with subject matter has reduced their perceived self-efficacy and their motivation to succeed. The present economic climate and the shortage of jobs does not improve the situation of these students either.

What TAFE has to aim for in its educational programs for under-achievers is an enhancement of self-esteem which would be likely also to reduce stress, self-doubt, and fear of change, and to promote self-agency as a vehicle of success.

Coopersmith's (1967) and Nutting's (1981) experimental studies suggest a high positive correlation between low self-esteem and high stress and anxiety, and between high self-esteem and low stress and anxiety. They suggest further that people with high self-esteem are more likely to assume an active role in work groups, achieve better at their work tasks and express their views more effectively. They are less troubled by fears, less burdened by self-doubt and minor personality differences, and move more directly and realistically towards their work goals. They experience high efficacy and perceive this within themselves.

Courses for under-achievers should contain content and processes designed to improve their perceived self-efficacy in the following ways:

(1) Help them to be realistic about what they can do and accurate about what they have done. If individuals are consistently evaluating themselves against some unrealistic benchmark, they are bound to perceive most of their efforts as failures.

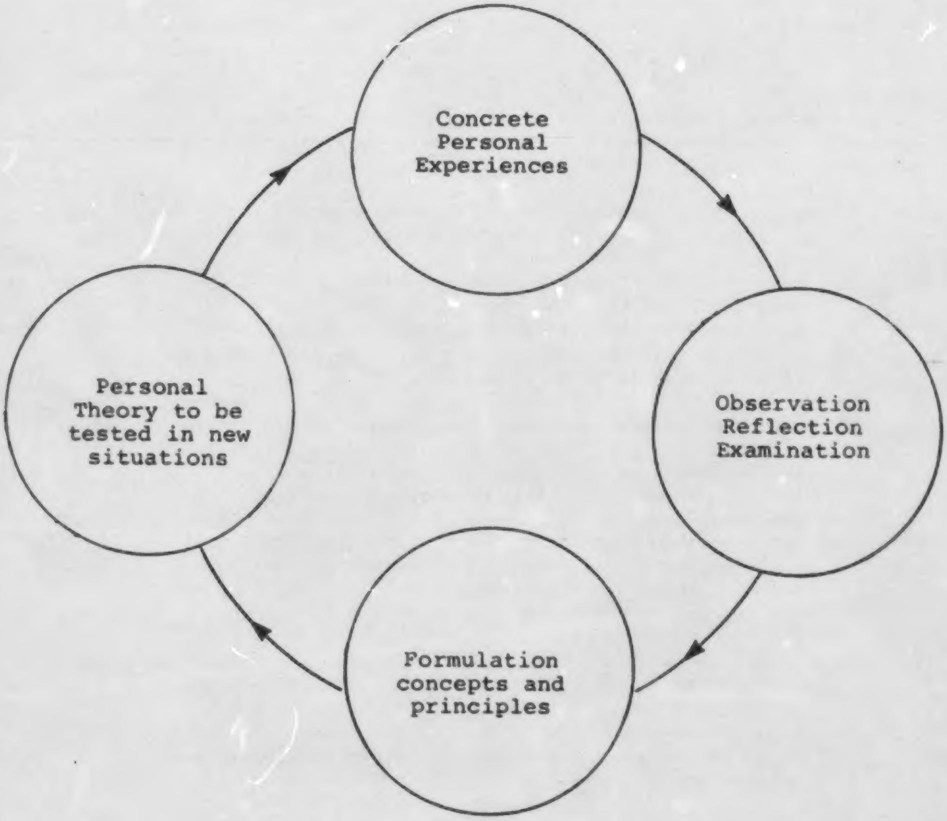
(2) Teach students to set realistic goals. Those with low self-concepts set their goals either unrealistically low or unrealistically high. These goals must be individual, made in relation to past performance, and they must have an end in view. This is particularly applicable to those TAFE students who are doubters of their own worth, "dropouts" in some cases from the school system, and many unemployed youths who consider the college is not capable of meeting their needs.

(3) Teach students to recognise others and to receive praise. Recognition of others brings recognition and reinforcement in return. Students should know how to help others. They need to learn how to recognise others. They need to be taught what to ignore, and how to handle failure situations.

(4) Pace learning so that students experience consistent success.

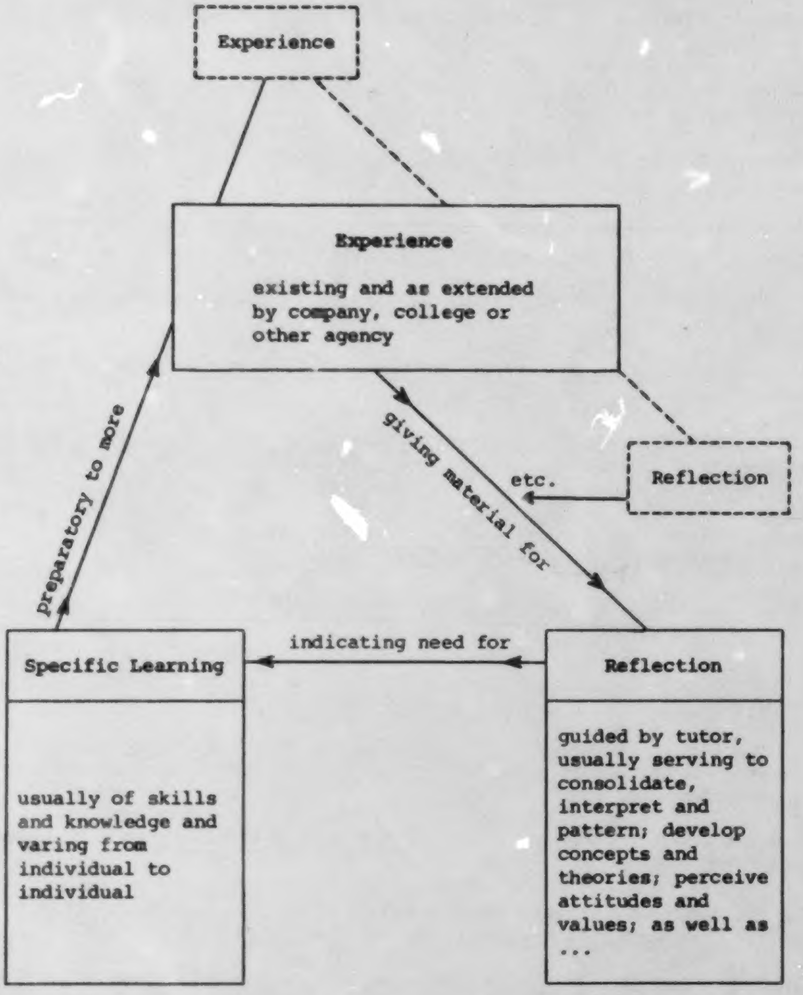
By increasing the perceived self-efficacy expectations of under-achievers, it would be hoped also to increase the students' coping behaviours in situations which may otherwise have caused them anxiety and stress. Achievements and personal growth would be facilitated, and they would be more able to realize their full potential. As well as this, if the TAFE system can also increase the ability of its students to adapt to varying environments, the community generally will welcome change rather than to fear it.

H.G. Wells said that history was a race between education and destruction; perhaps modern technology has given education the chance to win?


Concrete Personal Experiences
Observation Reflection Examination
Formulation concepts and principles
Personal Theory to be tested in new situations

Experiential Learning Model

JOHNSON, D. (1972)


Experience
Experience
existing and as extended by company, college or other agency
giving material for
etc.
Reflection
preparatory to more
indicating need for
Specific Learning
usually of skills and knowledge and varing from individual to individual
Reflection
guided by tutor, usually serving to consolidate, interpret and pattern; develop concepts and theories; perceive attitudes and values; as well as ...

Experience, Reflection, Learning Model

MELLING, G. (1978)

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IMPLEMENTING CURRICULUM THROUGH A DEMOCRATIC PROCESS (TAFE PLUS INDUSTRY = A REWARDING TEACHING/LEARNING ENVIRONMENT)

R. LAPLANCHE
TECHNICAL AND FURTHER EDUCATION - WESTERN AUSTRALIA

INTRODUCTION

This paper outlines one of many approaches used by TAFE in relation to models adopted for the contribution of research to a more rewarding teaching and learning environment. It deals with the process of achieving harmonious rapport between various organisations involved in administering suitable syllabi for industrial courses. The paper explains the model used and incorporates a realistic case study, in this case the Allied Timber Industries group.

Finally, the condensed data also reflect the typical West Australian model illustrating a co-operative effort between industry and the Technical Education Division.

BACKGROUND

TAFE in Perth, Western Australia

The Technical Education Division is the main provider of Technical and Further Education (TAFE) in Western Australia. The Division offers some 500 different formal courses and 3,000 subjects for students, as well as training programmes specifically designed to meet particular individual or company needs.

The Division offers courses and/or guided experience in the following areas:

- new more intensive forms of industrial training;
- various training arrangements for non-indentured skilled workers;
- certificate and diploma courses for technicians, middle managers, supervisors and others engaged in commerce, community service, manufacturing, rural, mining, artistic and other industries;
- diploma and other courses which lead to sub or full professional status or which enable professionals to update their technology or to specialise;
- vocationally related transition from school to work programmes;

- short intensive courses related to job skills or specific kinds of knowledge applicable within a particular company or industry;
- pre-apprenticeship, apprenticeship and post-apprenticeship in particular trade areas;
- courses which can be broadly described as preparatory or bridging, that is, leading to higher courses of study, or short courses in job skills or particular kinds of knowledge;
- adult education/leisure and other courses of an informal kind varying in length from a number of years to quite short periods, in any aspect of technology, science, liberal studies, self-expression, home handicrafts and cultural appreciation.

Allied Timber Industries

In Western Australia, the timber industry produces $40m worth of timber per year and generally provides employment for approximately 9,500 persons. Trades included within the industry sphere include timber technologists, cabinetmakers, carpenters, joiners, boat builders, wood machinists and foresters.

A combined total of over 2,300 students are currently attending courses for that industry in TAFE, Western Australia. A case study from the timber industry therefore can be regarded as representative for the implementation process of curricula.

Policies and Strategies

Approaching the year 2000, the Australian society will be required to re-adjust in the face of rapid change and present economic climate. In industry, for example, several adjustments will be required in order to maintain a viable workforce. The rate of economic growth and living standards, vast technological innovations affecting the overall employment level, the distribution of the population among the organisations, jobs, and certainly in most instances, the actual type of work in itself will be affected.

In view of the changes forecast in the Technical Education Conference Report for the Triennium 1982-84, it is obvious that the TEC has supported three proposals which encompass increased staff development grants to provide for an innovative programme designed to update the technical competence of teachers within the division; increased grants to support the work being accomplished by curriculum research and development; and certainly allowances have been made for new equipment to enable the Technical Education Division to keep up with the constant changes in high technology, machinery and computers constantly updated by all types of industries.

Because this paper is specifically dealing with the economic and technological assessment of one particular industry in the state of Western Australia, it only deals and expands on that policy alone.

THE MODEL - PART (A)

The Initial Groundwork - (The Research Committee)

Even though vocational and technical education is included within the overall framework of tertiary education, the vocational and technical curricula have certain characteristics that distinguish them from the rest of tertiary education.

Characteristics

One of the recent Government's policy statements on education sees the aim as: "To update our education system so that it meets the demand of our modern society and prepare the public for massive changes in technology within industry". Figure 1 indicates the characteristics which must be implemented within a technical curriculum in order to meet those requirements.

The first section of the model adopted, Figure 1, is thus relevant to the considerations Technical Education must adopt as part of its contribution to the community.

Figure 2 indicates the industries' needs to work hand in hand with the education system in order to jointly implement a satisfactory curriculum to meet their needs.

Figure 3 illustrates the characteristics which make up the typical technical curriculum proposition prior to negotiations, and Figure 4 shows the characteristics of industrial contribution.

FIGURE 1

TECHNICAL EDUCATION

(a) MUST OBSERVE PERFORMANCE OF THE INDUSTRY IN QUESTION WHICH MAY REQUIRE CERTAIN COURSES

(b) MUST JUSTIFY THE OCCUPATIONAL NEEDS AND POPULATION INVOLVED WITHIN THE INDUSTRY

(c) MUST BE ABLE TO FOCUS THE BROAD RANGE OF KNOWLEDGE, SKILLS, ATTITUDES AND VALUES RELATED TO THE INDUSTRY

(d) MUST CONSIDER EXISTING QUALIFICATIONS OF PARTICIPATING STUDENT POPULATION

(e) MUST MAKE ALLOWANCES FOR APPROPRIATE DISTRIBUTION OF FUNDS WHICH WOULD BE PART OF THE EDUCATIONAL FUNDING SYSTEM PRIOR TO EMBARKING ON SUCH A PROJECT

(f) MUST BE ABLE TO IMPLEMENT ALL TYPES OF RESOURCES AS PART OF THE COMPLETE CURRICULUM STRUCTURE

FIGURE 2

INDUSTRY

(a) MUST BE AWARE OF ITS OBLIGATIONS TO MAINTAIN AN EFFICIENT TRAINING PROGRAMME

(b) MUST ENCOURAGE ITS STAFF TO MAKE USE OF EDUCATIONAL INSTITUTIONS RELEVANT TO TECHNICAL TRAINING

(c) MUST CO-OPERATE WITH OTHER AUTHORITIES SUCH AS ASSOCIATIONS, GUILDS AND UNIONS

(d) MUST BE INCLUDED AS PART OF THE EDUCATIONAL COMMITTEES

FIGURE 3 CHARACTERISTICS - TECHNICAL EDUCATION CONTRIBUTION

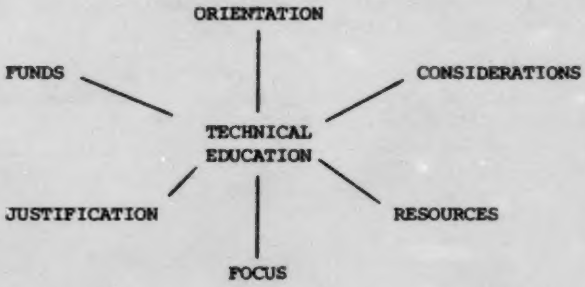
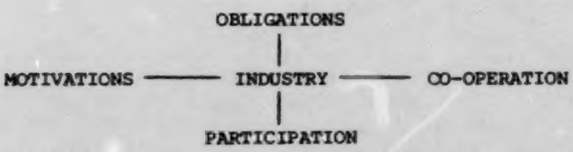

ORIENTATION
FUNDS
CONSIDERATIONS
TECHNICAL EDUCATION
JUSTIFICATION
RESOURCES
FOCUS

FIGURE 4 CHARACTERISTICS - INDUSTRIAL CONTRIBUTION


OBLIGATIONS
MOTIVATIONS
INDUSTRY
CO-OPERATION
PARTICIPATION

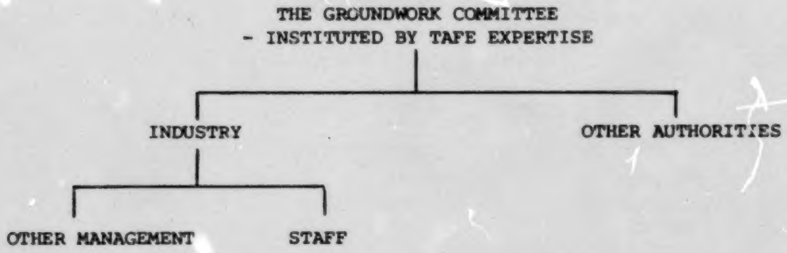
Liaison with Industry

In order to ascertain the needs of one particular industry, the "Allied Timber Industries" group, Technical Education initiated a survey of the group after some preliminary work. This was welcomed by the industries with whom close co-operation had been established previously. Indeed, the involvement of TAFE in Western Australia with the above industries has most certainly been seen as one key to success. Accordingly, personal contact and discussion with management and staff have resulted in a close association.

Stage one of the survey consisted of a questionnaire to all companies involved in that particular industry. Results obtained from the survey were used to prepare for the documentation of the proposed course.

Development of the curriculum has now progressed through various stages of the model leading up to the mechanics of how the technical curriculum is established through a democratic process (Figure 5):

FIGURE 5



At this point, documentation of the curriculum begins. It incorporates information provided by Curriculum Research and Development staff. This area is administered by a Senior Education Officer who is in charge of lecturers from various colleges, who are seconded to do projects relevant to their industry expertise.

THE AREA COMMITTEES

There is also a group of lecturers from various colleges teaching the areas of study in question; they form *ad hoc* Committees, either college-based or Curriculum Research and Development, Head office based. It is up to the Curriculum Research and Development staff seconded full time or part time to negotiate for those meetings prior to the final Area Committee meeting, which is chaired by the study area Superintendent (refer Figures 6 and 7).

FIGURE 6

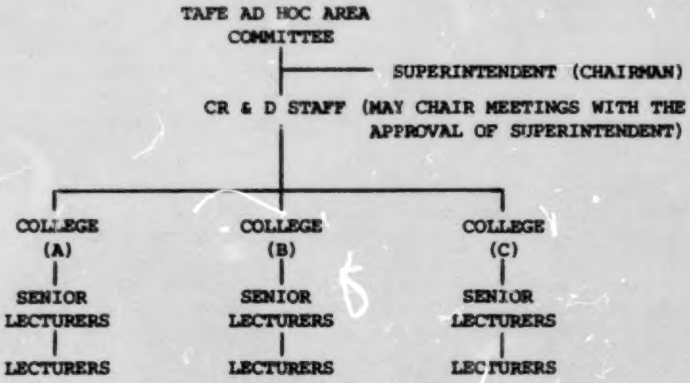
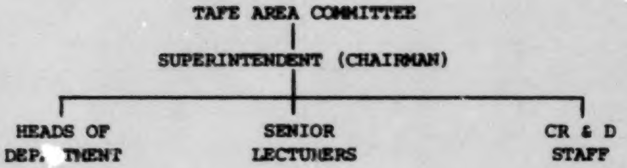

TAFE AD HOC AREA COMMITTEE
SUPERINTENDENT (CHAIRMAN)
CR & D STAFF (MAY CHAIR MEETINGS WITH THE APPROVAL OF SUPERINTENDENT)
COLLEGE (A)
COLLEGE (B)
COLLEGE (C)
SENIOR LECTURERS
SENIOR LECTURERS
SENIOR LECTURERS
LECTURERS
LECTURERS
LECTURERS

FIGURE 7

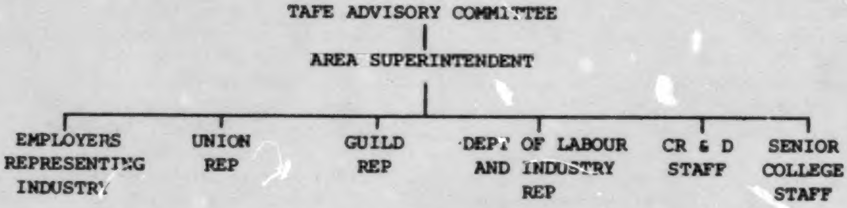

TAFE AREA COMMITTEE
SUPERINTENDENT (CHAIRMAN)
HEADS OF DEPARTMENT
SENIOR LECTURERS
CR & D STAFF

The documentation in the case of the Allied Timber Industries project was carefully scrutinized by the Committee, and adjustments to the syllabus had to be made to ensure that all objectives and teaching guides were correctly documented for presentation to the Advisory Committee, which examines the proposal next. By this stage the quality of the curriculum must be of high standard to be accepted.

THE ADVISORY COMMITTEE

At this point, it is imperative that all draft copies of the syllabus be printed, ready for distribution to various groups (Figure 8) so that the syllabus content might be further adjusted.

FIGURE 8


TAFE ADVISORY COMMITTEE
AREA SUPERINTENDENT
EMPLOYERS REPRESENTING INDUSTRY
UNION REP
GUILD REP
DEPT OF LABOUR AND INDUSTRY REP
CR & D STAFF
SENIOR COLLEGE STAFF

With the Allied Timber Industries courses, the time consumed to compile a set of syllabi for stages one, two and three apprentices would be, conservatively, one academic year, taking into consideration the administrative tasks which have to be carried through the various stages.

Conducting the curriculum materials for evaluation by the Divisional Council of Studies becomes the final step in confirming the validity of the contents of the documents.

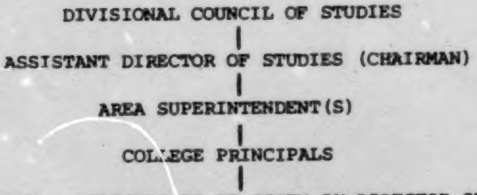
THE DIVISIONAL COUNCIL OF STUDIES

Once the Superintendent has signed the documents for recommendations by the Divisional Council of Studies, see Figure 9, a thorough scrutiny of the documentation is exercised by the Council which is chaired by the Assistant Director of Studies. The Council is made up of Area Superintendent and College principals.

Every aim, objective and guide is carefully scrutinised and possibly adjusted prior to final approval by the Director of Studies.

Records of the documents are finalised by the Statistics Department. The documents are noted for publication in the 'Manual of Subjects and Courses' and the syllabus is distributed to college principals and senior lecturing staff.

FIGURE 9


DIVISIONAL COUNCIL OF STUDIES
ASSISTANT DIRECTOR OF STUDIES (CHAIRMAN)
AREA SUPERINTENDENT(S)
COLLEGE PRINCIPALS

NOTE: APPROVAL TO BE GIVEN BY DIRECTOR OF STUDIES PRIOR TO MSC DOCUMENTATION BEING DATED FOR ISSUE.

CONCLUSION

Technical and Further Education in Western Australia is taking its responsibilities seriously with respect to training courses for the Allied Timber Industries. There is a wide field to cover and an ever increasing change in technology to cope with. Many of our competent people are concentrating on the task of innovative course design and keeping abreast with current developments in their field. Industry needs to keep Technical and Further Education fully informed of their immediate requirements, so that courses can be tailored to suit those ever changing technologies. Furthermore, Technical and Further Education in Western Australia is available to undertake this developmental work which is needed to make industry more effective to cope with their future challenges.

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REMEDIAL TEACHING IN A TERTIARY INSTITUTION

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QUEENSLAND INSTITUTE OF TECHNOLOGY

The origin of remedial programs outlined in this paper lies in the results of induction and screening tests administered to incoming students of applied science, health science, engineering and business studies. These tests were administered in basic chemistry, mathematics and physics during the period from 1975 to the present time. Results of these tests have shown that there were shortcomings in understanding of basic concepts and gaps in knowledge deemed essential for undertaking tertiary level courses. While it is difficult to assign reasons for this situation, there are at least two contributing factors and these may be defined as follows.

(i) students entering tertiary level studies with little experience in the subjects under discussion.

In recent years there has been a relaxation of the requirement for matriculating students to have studied a wide range of pre-requisite subjects. For example, in the School of Applied Science, a rigid system of pre-requisite subjects for science based courses at tertiary level (successful completion of matriculation chemistry, mathematics and physics) has been replaced by a system in which only mathematics and one science unit (or additional mathematics) is required.

During this period there has also been a considerable increase in the number of mature age students returning to study. Many of these students have either limited background knowledge in science and/or mathematics or have been absent from formal study of these subjects for a considerable period of time.

(ii) Students from secondary school having varying degrees of competence or knowledge in basic science and mathematics.

The present system of secondary education allows for a varying degree of emphasis to be placed on certain aspects of the syllabus. This absence of a rigidly defined syllabus may serve to produce a variation in the competence and knowledge of incoming students.

When the variations which have been outlined are superimposed on the usual spread of student abilities, the resulting levels of background knowledge of students in science and mathematics may be very wide indeed. A summary of the results of screening tests is presented in tables 1,2,3 and 4.

TABLE 1

Percentage Correct Answers to Test Items - Chemistry

ITEMS	CONTENT	TEST 1	TEST 2
1, 20	Formula construction	70.6%; 19.0%	85.2%; 18.6%
2, 21	Elucidating information from atomic species	48.4%; 54.4%	72.9%; 87.6%
22, 3	Assigning electrons to orbitals; orbital nomenclature	29.0%; 47.2%	32.4%; 46.7%
4, 23	Chemical equilibrium; prediction of the direction of a reaction	52.4%; 42.1%	71.4%; 50.0%
5, 24	Balancing redox half equations	16.3%; 23.0%	58.6%; 53.8%
6, 25	Calculating empirical formulae	65.9%; 23.0%	59.0%; 63.3%
7	Knowledge of a chemical reaction from given properties	12.7%	9.0%
8	Knowledge of a simple chemical reaction	72.6%	83.8%
9	Knowledge of precipitation reactions of ions	31.0%	42.9%
10	Knowledge of concept of neutralization	44.8%	77.1%
11	Calculation of oxidation numbers	37.2%	63.3%
12	Ratio of atoms in formulae	52.0%	76.7%
13, 27	Balancing complex equations	15.9%; 13.5%	17.1%; 11.9%
	Calculation of masses of products or reactants from chemical equations using:		
14, 28	(i) masses and gas volumes only	57.1%; 32.9%	66.7%; 61.9%
16, 29	(ii) masses and solution concentrations	45.6%; 19.8%	65.7%; 43.3%
26	(iii) knowledge of moles only	81.0%	96.7%
15	(iv) mole fraction calculation	21.0%	59.0%
17, 30	Calculation of formula weights	81.7%; 58.3%	91.0%; 91.4%
18, 19	Calculation of pH	71.4%; 40.1%	84.8%; 59.5%

TABLE 2

Percentage Correct Answers to Items - Mathematics

AREA		TOPIC	GROUP A	GROUP B	GROUP C
BASIC ALGEBRA	1	Removing brackets	78.5	78.8	85.2
	2	Simple substitution	91.9	85.9	95.6
	3	Cancelling fractions	66.0	65.3	89.6
	4	Factoring trinomial	63.3	60.7	77.7
	5	Adding fractions	76.7	78.5	91.7
	6	Positive indices	79.4	76.2	88.3
	7	Simple equations	60.6	69.3	80.9
	8	Simultaneous equations	68.7	64.7	89.3
	9	Quadratic (formula)	44.6	37.5	61.0
	10	Quadratic (factors)	66.0	62.4	76.9
	11	Transforming formula	82.1	73.3	94.3
	12	Sigma notation	36.6	43.8	74.8
LINES AND CURVES	13	Gradient of line	52.6	50.1	76.6
	14	Distance between 2 points	58.0	51.2	85.7
	15	Equation of line	42.8	44.1	71.8
	16	Intersection of lines	61.6	60.0	83.8
	17	Gradient of a curve	73.2	62.4	92.8
TRIGONOMETRY OF TRIANGLES	18	Ratios in right triangles	77.6		92.4
	19	Pythagoras' rule	69.6		86.2
	20	Properties of triangles	53.5		69.5
	21	Area of general triangles	32.1		61.9
	22	Sine rule	24.1		44.6

(Continued)

GROUP A - Built Environment (N = 112)

GROUP B - Business Studies (N = 349)

GROUP C - Applied Science, Health Science, Engineering (N = 553)

TABLE 2

(continued)

Percentage Correct Answers to Items - Mathematics

AREA	TOPIC	GROUP A	GROUP B	GROUP C
FURTHER ALGEBRA	23 Functional notation			88.4
	24 Factor theorem			63.1
	25 Negative fractional indices			57.1
	26 Negative indices			73.0
	27 Binomial theorem			43.4
	28 Defining log function			57.8
	29 Inequalities			43.2
TRIGONOMETRIC FUNCTIONS	30 Trigonometric ratios			71.5
	31 Signs in quadrants			71.4
	32 Definition of radian			60.8
	33 Graphs trigonometric functions			69.0
	34 (A + B) identities			52.8
	35 Trigonometric equations			32.7
CALCULUS	36 Definition of derivative		24.9	41.0
	37 Definition of a power		61.0	90.9
	38 Chain rule		32.3	63.4
	39 Definition of maximum		24.0	45.0
	40 Definition of integral		38.6	67.9
	41 Definite integral		30.3	62.7
	42 Area under curve		21.4	53.1

TABLE 3

Physics Induction Tests

Student Performance - Part A

	CONTENT	COMMENT
1.	List 3 scalar : List 3 vector quantities.	Correct 30.8% (46.7%) No answer / incorrect 33.6% (1.9%)
2.	State of motion of a particle in which a net force of zero is acting.	Correct 28% (52.3%) No answer / incorrect 62.6% (15.0%)
3.	Write expressions for: (a) translational kinetic energy (b) linear momentum	Both correct 35.5% (69.1%) One correct 38.3% (2.8%) None correct 26.2% (-)
4.	Conditions for conservation of: (a) linear momentum (b) total mechanical energy	Both correct 1.9% (13.1%) One correct 26.2% (40.1%) None correct 72.0% (18.7%)

(Repeat test results are shown in brackets).

TABLE 4

Physics Induction Tests

Student Performance - Part B

ITEM	CONTENT	% CORRECT 1	% CORRECT 2
1.	Definition of Force	1.9%	55.3%
2.	Kinetic Energy Calculation	28.0%	65.9%
3.	Circular Motion; friction	7.5%	35.3%
4.	Conservation of momentum	57.0%	89.4%
5.	Components of Forces	35.5%	58.8%
6.	Components of Forces : friction	12.1%	11.8%
7.	Conservation of Energy. P.E. + K.E.	9.3%	27.1%
8.	Projectiles	40.2%	58.8%
9.	Force calculations; velocity calculations	35.5%	50.6%
10.	Power calculations	22.4%	51.8%
11.	Projectiles; components of velocities	15.0%	4.7%
12.	Circular motion; addition and subtraction of vectors	6.5%	5.9%
13.	Graphical interpretation, force, time, momentum	25.2%	51.8%
14.	Pressure calculations	22.4%	42.4%
15.	Collision of particles	44.9%	52.9%

1 = initial test

2 = repeat test

While there may be discussion on the reasons for the lack of understanding and knowledge evident from the results of tests there can be no doubting the need for remedial programs to allow students to bring themselves to a standard which should enable them to enter tertiary studies with more confidence.

Accordingly, the various departments within the School of Applied Science have developed remedial or induction programs which have grown and which appear to be fulfilling a student need. The various ways in which these programs have developed is related to the nature of the subject. Remedial work may be broadly categorized as follows:

(a) A program as part of a tertiary semester unit (chemistry).
This program aims at:

(i) providing an intensive brief revision for secondary school students who have not experienced rigorous scholastic work for 3-4 months

(ii) allowing the mature age student to obtain the minimum useful chemical knowledge and skills required for the persuance of tertiary studies in chemistry thereby increasing his confidence in attempting these studies. The program allows for five to eight hours of instruction during the first two weeks of the initial semester of chemistry and is developed around a self-paced text book of basic chemistry items (Kokot,1983). This basic text contains essential theory, examples and graded exercises. Although the material is self-paced, tutors are present for the assistance of students who find themselves in difficulties. A screening test is given after the program. These results immediately indicate to students the areas of weakness which remain and they are consequently directed to study supplementary self-paced programs such as specialised aided instructional (CAI) material.

(b) A program running parallel to tertiary semester work - mathematics and physics.

(i) Mathematics: While some students (about 30 in number) study mathematics as a major subject, the vast majority of students study mathematics as a service subject. The students undertaking the study of mathematics are academically diverse from engineering students with a strong mathematical background to business studies and built environment, students whose mathematical background is in some cases very limited.

To meet the problems caused by the limited mathematical background of students, a Remedial Mathematics Facility (R.M.F.) has been established. In this facility students take a computer masked screening test on entry. The students are subsequently issued with a print-out advising them of their scores and whether or not remedial work is required in one or more of several areas. Should remedial work be required it is suggested that the student visit the RMF as soon as possible. Tutoring at the Remedial Mathematics Facility is by either personal tuition or the use of remedial mathematics self-paced texts (modules) (Hubbard,1980). In certain cases, students require personal tuition before they embark on self-paced materials. (Generally, the personal tuition is required for basic algebra and is carried out in a single session.)

Finally, in addition to providing assistance with remedial materials the tutors at the R.M.F. help weaker students with tutorial exercises related to tertiary courses in mathematics. This ensures that students who undertake remedial work do not slip behind in the courses being studied for credit.

(ii) Physics: In Physics, an initial screening test covering the basic aspects of mechanics is administered to students in the first week of semester. On the basis of the results, students who do not perform to a predetermined level are instructed to attend a series of special tutorials which deal with specific areas of introductory physics. While attendance is not compulsory, it is strongly recommended to the weaker students.

(c) A program conducted prior to entry into tertiary courses - mathematics. Results from questionnaires administered to students in 1981 and 1982 indicated that it would be desirable to conduct a remedial mathematics program prior to student entry in tertiary courses. The course, introduced at the beginning of 1983, is specifically directed at students who have been absent from the formal study of mathematics for some time. The title of the course "Updating Course of Essential First Level Tertiary Mathematics" is an expression of the already stated aim. The course consists of six evenings (18 hours) of lectures and tutorials. Students are assigned into groups in terms of the course about to be studied and in terms of the results obtained in screening tests on entry. The first program of this type has been highly successful with one hundred students, both mature age and normal entry enrolling.

EVALUATION OF THE COURSES

Two questions may be asked of any evaluation of remedial basic science and mathematics courses. Firstly, are the courses useful in themselves? In other words do the courses achieve their stated aim which is to bring students to an acceptable level of competence in basic science and mathematics. Secondly, do the courses influence a student's performance in tertiary studies? In other words, once students have achieved the aim as stated in the initial question, are they then successful or otherwise in their tertiary studies?

The answer to the first question is simply provided using pre-and post-testing during the period of remedial studies. Results obtained in all three disciplines would indicate that a substantial improvement in test scores is evident after remedial work has been completed. Furthermore, in the case of chemistry, it has been shown that the improvement of students is greater for those who take remedial courses than those who do not (Kokot and Litster, 1981). In mathematics, a comparison of screening test results indicate that engineering students who attend the updating course have a better score than those who do not. (Table 5)

It is also of interest to note the improvement for all students who attend the updating course. Students who have not studied mathematics at matriculation level for ten or more years show substantial improvement. However, those students who have no matriculation mathematics background do not make the same improvement as those with some previous experience in mathematics to matriculation level. (Table 6)

TABLE 5

Screening Test Scores for Incoming Evening Engineering Students

GROUP	N	MEAN SCORE	DEVIATION
1982 class	96	60	-
1983 class	87	71	7.3
Updating class 1983	15	82	4.0
Non-updating class 1983	42	67	8.1

TABLE 6

Screening Test Scores - Students in Updating Mathematics Course

GROUP	YEARS SINCE LEAVING SCHOOL	NO.	FIRST TEST %	MEAN IMPROVEMENT SECOND TEST (%)
A	0	41	53	22
B	1-2	14	33	29
C	3-9	28	37	33
D	>10	17	27	39
Matric Maths	-	80	44	30
No Matric Maths	-	20	30	24
Total	-	100	41	28

A similar situation exists for remedial programs in physics where the results of pre- and post-tests indicate improvement in score in basic mechanics after completion of a lecture-tutorial induction program.

In attempting to answer the second question, it is immediately evident that there are a large number of factors contributing to student performance at tertiary level. Again, quantitative evidence is not easy to obtain as there is no measure (independent of the Institute), of a student's entry standard in mathematics, chemistry and physics. In the absence of these data, several methods have been used in an attempt to gauge student performance.

(i) Mathematics: the effectiveness of the R.M.F. has been considered using a comparison of pass rates of those students who attend the R.M.F. facility and those who do not (Hubbard,1982). Examination of 1982 data (Table 7) also indicates that a greater proportion of students who use the R.M.F. succeed than those who do not. In qualitative terms, the increasing use of the facility by students gives an indication of its value to them.

TABLE 7

Pass and Fail Rates in Mathematics for Weaker Students in Science and Engineering

	FAIL	PASS	
HELP FROM R.M.F.	27	85	112
NO HELP	135	217	352
	162	302	464

$\chi^2 = 7.58$ ($\chi^2_{sig} = 6.64$; df $= 1$; $P = 0.01$)

(ii) Chemistry: At this stage, there is no evidence that scores in screening tests relate strongly to semester scores in chemistry subjects. Studies carried out with earlier versions of the chemistry screening tests indicated that the correlations between test results and semester scores varied markedly for different groups of students (i.e. different courses). Before any definitive statement can be made more detailed information is required. It must be emphasized, however, that the stated aim of the chemistry induction program is to bring all the students to an acceptable basic level of competence in basic chemistry prior to embarking on tertiary material.

RECENT DEVELOPMENTS

It is not difficult to perceive that the cost of running remedial courses is considerable. This cost is staff related and involves the provision of academic staff (particularly at tutor level.) In an evaluation of remedial courses, cost is an important factor, particularly in a time of financial stringency. An examination of alternative measures is therefore a necessary exercise.

The alternative which immediately comes to mind is the use of Computer Aided Instruction as a means of providing remedial instruction. The continual decrease in the cost of microcomputers has prompted the research group to produce and evaluate CAI programs devoted to microcomputers in remedial chemistry and physics courses. At this stage, six programs have been written using Apple PILOT Authoring language. While PILOT does have limitations in writing programs for use in science and mathematics, there are advantages in using the system because of its graphic and character generating capabilities (Astill, 1983) At this stage, student reaction to these programs is extremely positive.

At present there seems little likelihood of a total conversion to CAI for the purposes of remedial teaching. At this stage it is used at a second level of teaching for those students requiring further instruction after tutorials and self-paced print materials have been used. Factors mitigating against the total adoption of CAI in this field are the present high cost of hardware and more importantly, the high cost of production of software. In our experience a full time tutor is required to produce CAI material from material developed by lecturing staff. However, if the present downturn in the cost of microcomputers continues, the provision of hardware for extensive CAI usage may cease to pose financial problems. In this event, the potential heavy usage of remedial software would justify the high developmental costs.

FUTURE DIRECTIONS

It appears to us that the concept of remedial teaching in tertiary institutions at introductory level is a necessary part of the tertiary system. In the case under discussion, the obvious areas for remedial teaching are chemistry, mathematics and physics as these subjects form large and/or important sections of first year tertiary work. Furthermore, unless courses attract either highly qualified entrants (as in medicine) or students competent in basic sciences and mathematics (as in engineering) there are always likely to be students who need remedial instruction. As has been seen, the remedial teaching areas may rapidly extend their function from teaching introductory material to helping students with difficulties encountered at first year level. In short, the rapid growth in use of these facilities would indicate that the need for provision of remedial courses in various forms and the continued production of associated instructional materials represents a legitimate claim on the financial resources of a tertiary institution. Parallel with this claim is a continuing responsibility of the practicioners in this field to constantly evaluate the courses, instructional systems and materials used. The authors of this paper have used test results, error analysis systems and results of student questionnaires to provide a basis for both the redevelopment of screening tests and the provision of suitable instructional materials.

Several problems still remain to be completely solved. In the first instance, a more precise means of relating remedial work to subsequent performance is desirable. Secondly, the status of remedial courses in an institution needs to be clarified. This, of course is a matter for individual institutions. Thirdly, there is a need for the development of an extensive range of instructional material in print, video, and CAI format so that the workers in the remedial field have as many remedial tools as possible at their disposal. Finally, there is a need to provide information for tutorial staff on the techniques of teaching in remedial situations, and of the needs of students who experience difficulties in the subjects under discussion.

ACKNOWLEDGEMENT

The authors wish to thank the Commonwealth Tertiary Education Commission Evaluative Studies Steering Committee for support in the evaluation of programs and teaching materials described in this paper.

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CHAPTER 7

THE STUDENT IN TERTIARY STUDY

Much of the satisfaction which tertiary teachers derive from teaching comes from personal contact with students. Knowledge of how students experience university, tertiary education, their expectations, experiences, and problems enable the individual teacher and the institution to be more responsive to students.

Dare and Hurworth describe in their paper a study of student experiences of first year at the Royal Melbourne Institute of Technology. They report on the history, the purpose, the method of such studies at RMIT. The issue is then where change is required: at the level of individual interaction, classroom, department or institution; and whether any or all of them will change or adapt on the basis of information received from students.

Some of the previous papers have established ways in which the institution's responsibility towards the student can be demonstrated (Nutting) by making courses relevant to particular groups of students, (Astill *et al*) by helping with the transition to tertiary study. Later papers will describe how students can be helped to cope with the demands for high standards in writing (Bock, Nightingale). The paper by Bowden and Hancock focuses on another aspect of students' tertiary education, that is, their own personal development. The authors concentrate on mature age students, examining the relationship between learning experiences and life stages and explaining student problems in that context. From the two case studies described it becomes clear that courses in note-taking and essay writing, for example, are not sufficient or appropriate assistance; though problems might look like study problems, the whole person in its environment and developmental stage needs attention.

Byde, Carpenter and Western in "Student judgements of professional courses" look at how students view their learning experiences once they have to apply their learning. In an extensive study of student reflections on their training during and after their formal teacher education they find significant differences between secondary school teachers and trainees, and those in primary education. The lack of relevance of the course for the practice of the profession is a complaint which not only teacher trainees have. Curriculum development, reviews, and research projects like the one the three authors are involved in may all contribute to making professional courses relevant to practice.

Powell reports on "The impact of higher education: graduates report on what they learnt". He draws on 22 individual accounts by students enrolled in a higher degree program. They are pointers to what graduates perceive as important, to factors which were perceived as helping or hindering learning.

From both these studies of graduates' reflections on their experiences it becomes clear that if students are to grow through the learning experiences we provide they need an environment which facilitates learning: an environment where intellectual skills and attitudes conducive to learning are valued.

STUDENT EXPERIENCE OF FIRST YEAR AT RMIT

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INTRODUCTION

During 1982 and 1983 the RMIT Education Unit has been involved with two studies of the experience of first-year students in the Advanced College, RMIT. In 1982 the Unit completed a study of 55 current and ex-students who in 1981 had entered first year in the Department of Mechanical and Production Engineering. Currently, the Unit is completing a study of those who in 1982 entered first year in the Department of Librarianship with 77 current and ex-students having been interviewed and the results now being processed. Both studies focussed on a few, broad areas of current concern: the quality of pre-course information received by students, the aspects that they had enjoyed about first year, the difficulties they had encountered, how they saw RMIT as a place of study, their reasons for discontinuing (if they had discontinued) and their suggestions for improvement.

EARLIER STUDIES

The 1970 Cohort Study

The Education Unit was established in 1972; included in its charter was a brief to carry out institutional research with student progress studies mentioned specifically. The Unit's first study, completed in 1975, surveyed the 1970 cohort of new, first-year students from 1970 to 1974 and indicated a relatively high drop-out rate.[1] We could not be fully confident with this study, however, as it was based on a 12 per cent sample and there were some doubts about the reliability of the Institute's computer records in this period.

The 1973 Cohort Study

To verify the findings of this study and to investigate the matter further we commenced a full cohort study in 1976. Considerable difficulties were experienced with manipulating the computer records and it was not until 1979 that the study was actually completed. It comprised a statistical survey of the progress of the 1973 cohort of new, first-year students of the Advanced College over the period 1973-1977.[2]

While the 1973-1977 study was still incomplete, RMIT (along with other colleges of advanced education) was asked by the Williams Committee to provide similar data about the progress of the 1974 cohort over the period 1974-1976. This gave our study some measure of official sanction and also assisted us in two ways: first the work done by the RMIT Planning Branch in providing information for the Williams Committee was vital in helping us to complete our own study and second, the eventual publication of student progress data from RMIT and other colleges removed any potential controversy over whether our results ought to be made public or not. The appearance of the Williams Report had two other effects. First, it revealed that although the rate of student discontinuance at RMIT was relatively high, it was comparable to that experienced by other large, metropolitan, multi-purpose colleges of advanced education.[3] Second, it signified that official bodies were concerned about student progress and therefore, apart from any other reasons, this concern would ensure that student progress data would henceforth be regarded as important by RMIT.

As a result of a recommendation in our 1973-1977 study, the Director of RMIT asked the Unit to arrange an Institute-wide conference on student progress to canvass the issues. This was held in October 1981 and attracted over 200 staff (teaching and administrative) and students of both the Technical and Advanced Colleges of RMIT, and was the most ambitious in-house activity the Unit had arranged. Conference papers were prepared, syndicates discussed and reported and considerable interest was aroused.

There have been several significant outcomes from this increased interest in student progress at RMIT:

(a) The Director has asked each department to report on current and planned actions to improve student progress.

(b) On a regular basis the Planning Branch is producing statistics on student progress by department, the first report being that of transition between 1980 and 1981.

(c) The Division of the Registrar suggested to the Education Unit that a study be carried out at RMIT to investigate the reasons why students discontinued their courses.

The latter request was the one which led to the two studies which are being described herein.

THE NATURE OF THE STUDIES

Although the genesis of the studies lay in concern about student progress, we decided to focus on how students experience being a student at RMIT, in the hope that the resulting information would enable us to identify those aspects which might be leading to what we termed "unnecessary discontinuance", that is, discontinuance which was mainly a result of unsatisfactory teaching, learning and administrative arrangements at RMIT. We made the following decisions:

(a) In order to keep the study manageable, we would focus on one department only.

(b) Because the rate of discontinuance is generally greatest between first and second year, we would survey first-year students.

(c) In order to complete the study in a short period, the study would be retrospective rather than "real-time", that is, we would survey those students who had been in first year in the previous year rather than monitoring those currently in first year.

(d) To make the project more attractive to potential client or subject departments, external funds were secured, derived from a trust fund adminsitered by RMIT Council.

(e) We would call for applications so that all interested departments would have the opportunity to be considered.

(f) The project would be controlled by a management committee representing all the interested sections of RMIT.

(g) The subject department would receive a detailed and confidential report; a more general, summary report would be prepared for wider circulation within RMIT.

(h) All those who had been students in first year in the previous year would be contacted for interview, whether they had continued into second year or whether they had discontinued.

Our decision to sur[illegible] all students distinguishes our study from many studies of student progress which interview only those who have discontinued. There were two reasons for our decision: first, we hoped that the experiences of those who discontinued might be discernibly different from those who had continued, and second, we hoped that it might be more fruitful to try to identify the strategies of "successful" students rather than focussing on those students who are, in this limited sense, "unsuccessful". In this regard, the key question then becomes, how did continuing students avoid discontinuing?

CONDUCTING THE STUDIES

In March 1982 we invited Advanced College departments to participate in the study; of the twenty-five departments in the College, nine applied. Two departments were short-listed, the Department of Mechanical and Production Engineering being selected and the Department of Librarianship coming second. Significant factors which led us to select Mechanical Engineering were, first, that the results could be applied broadly to engineering and applied science, which are major subject areas within RMIT, and second, that the department had been sponsored as its official applicant by the Faculty of Engineering. Librarianship, which was a strong candidate because of its balance between full/part-time and school-leavers/mature age students, was invited to participate in the second study, 1983, and accepted the invitation.

Each study was controlled by a management committee constituted to enlist the support of each group vital to the success of the study:

Assistant Director, Student Services (Chairman), signifying the interest of the Division of Student Services in the study;

Representative of the Division of the Registrar, which holds the relevant student records;

Educational Development Officer, as Project Director;

Education Resource Officer of the SRC, signifying the interests of students generally;

One staff member of the subject department, in order to ensure that information to be gathered would be of interest and use to the department;

One student from the subject department, to ensure that student interests were safeguarded.

IMPLICATIONS OF OUR METHOD OF ADMINISTERING THE STUDIES

From the point of view of the Education Unit, the way in which the project was designed and conducted was significant; over the period of the studies the process has become as important as the content of the studies:

(a) The subject departments are clients of the Project Director and the Management Committee, rather than the objects of the study;

(b) the clients have a major role in the design and conduct of the studies;

(c) the subject departments applied to participate, rather than being obliged or directed;

(d) the studies are gathering information in areas already identified by the subject departments as important and requiring action; and

(e) the reports are the confidential property of the subject departments concerned.

In the case of the Department of Mechanical Engineering which received its report in November 1982, a working party was established to receive the report and identify the main messages. The Education Unit supported the working party and helped draft its report. In this phase, the process has been client-centred, in that the Unit has helped the department to draw out from the study the implications which the department (not the Unit) believed to be significant. When the Librarianship study is complete, we will encourage that department to follow a similar process.

In summary, the two studies represent a kind of action research which aims to provide the departments with information they need to develop in the directions they choose. One major process outcome has been that the studies may have the effect of strengthening the position of those within the departments who have already been pressing for development in particular directions.

For example, from the Mechanical Engineering study the departmental working party identified three areas needing improvement: staff-student communication, pre-enrolment information and workload in first year. In each of these areas, active staff members had already taken some actions and were pursuing others, hence the study has provided emphasis or reinforcement rather than new information.

In each department, we have received wholehearted support from staff. This is essential because the majority of those to be interviewed are now second-year students in the course. The high level of both staff and student co-operation indicated to us that the studies were in fact seen as being in the interests of the departments concerned.

THE MAIN MESSAGES OF THE STUDIES

This paper has focussed on the way in which the studies arose, how they were organised and how they have been received so far. Although the Librarianship study is not finished, almost all of the interviews have been completed, and some general comments arising from the two studies are possible. The main messages for RMIT Advanced College departments are as follows:

(a) Many students regarded their pre-course information as being only of limited use or worse. Students often have little idea of what it is like to be a student at RMIT, what their course will be like or what kind of career it leads to.

(b) Major problems include aspects of the courses, self-motivation, loneliness, work-study conflicts, commuting and relevance of particular subjects.

(c) Very few students had sought help from others; none of those who had discontinued had approached counsellors in Student Services.

(d) As many as one-third of continuing students had seriously considered discontinuing and most had not approached anyone to discuss this issue.

(e) Major reasons given for discontinuing could be categorized in terms of "mismatch", for example, could not see the relevance of subject-matter, course not what expected, changed course or career aspirations, found they were not suited to the discipline area and conflicts with other commitments.

(f) RMIT as an institution is also seen by students to have many strengths: high reputation; often recommended by relatives, colleagues and previous students; more intimate teaching and learning atmosphere than universities; offers some courses unique in the system or else more highly-regarded than those in other colleges.

SUMMARY

From the point of view of an educational development unit, we have been happy with these studies. They are proving to be productive and the client-consultant style of relationship is working well. The subject departments have shown interest in the results so far and indications are that the information will have a beneficial impact on teaching and learning arrangements. The studies are also likely to lead to further productive involvements between the Education Unit and the subject departments. For Mechanical Engineering, follow-up interviewing and an evaluation of the current first-year program have already been agreed to in principle. We therefore think that our experience may be of use to other staff interested in the further development of teaching and learning who are looking for ways of promoting productive and harmonious involvements with academic departments.

NOTES

1. Summary data from 1970-1974 sample study:

	N	Gained award by end of 1974:	Continuing in 1974:	Discontinued by end of 1973:
full-time	131	22%	20%	58%
part-time	184	7%	16%	77%

2. Summary data from the 1973-1974 full cohort study:

	N	Award in minimum time:	Award in greater than than minimum: time	Continuing:	Discontinued:
Full-time	1454	34%	8%	6%	53%
Part-time	1301	Gained award:		5%	78%
		17%			

3. Percentage of the 1974 cohort discontinued by 1976, by course level and load. (Derived from Williams Report, Vol. II, pp. 123, 125, 129 and 131), selected colleges:

	FT UG1	PT UG1	FT UG2	PT UG2
Twelve multi-discipline colleges (including RMIT)	37	64	44	65
RMIT	39	74	54	61
NSWIT	42	55	72	62
Swinburne	42	68	42	66
SAIT	36	59	NA	NA
WAIT	41	64	69	71

LIVING AND LEARNING AS A MATURE-AGE STUDENT

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In a previous paper (Hancock and Bowden, 1982), we brought together our research findings (Frederick et al, 1981) on the learning skills needs of university students and the model of human development articulated by Egan and Cowan (1979). Its purpose was to provide teachers at both secondary and tertiary levels with an easily communicated, research based argument for the position held intuitively by many educationists: that learning 'problems' are best approached by considering the learner as a whole person and not by treating the learning situation as something quite separate from other aspects of personal development. That paper concentrated on the learning and development of school leavers. In this paper, we apply the argument to two, more advanced life stages (in Egan and Cowan's terms): young adult learners and those approaching middle age.

Figure 1, derived from our earlier paper (Hancock and Bowden, 1982), summarises the Egan-Cowan description for the late adolescent. This age range (18 - 22 years) represents a 'life stage' which includes a high proportion of new students in higher education: certainly most school leavers are entering this phase of development.

The model is described elsewhere (Egan and Cowan, 1979; Hancock and Bowden, 1982) and will be presented here only in brief summary form. Figure 2 summarises the Egan-Cowan model for early adulthood and pre-middle age. The basis of their approach is that at various stages of life, individuals are confronting different challenges and, in order to master them, need to develop new patterns of behaviour (Egan and Cowan's developmental tasks). The setting (key systems) is vital, needing members who understand the individual's frame of reference (basic human support). Also needed are a working knowledge and skills to handle current developmental challenges. For example, the late adolescent needs some basic information to prepare for and handle the move from secondary to tertiary study, and from home to independent living. Older students may have been managing a job quite competently in their established settings but be ill-equipped initially to manage the scholarly tasks required of them and to adapt to the strange academic environment.

The knowledge, skills and basic human support combine to form the conditions necessary for individuals to master developmental tasks.

Figure 1: Summary of Egan-Cowan model for late adolescence

Age (yrs)	Life Stage	Developmental Tasks	Basic Human Support	Working Knowledge & Skills
			Parents	SELF-MANAGEMENT Goal-setting Organising time Solving problems Making decisions Taking risks
		Independent living		INTERPERSONAL SKILLS Communicating
18 to 22	Late Adolescence	Independent initial career decisions	Teachers	with individuals with groups
		Initial experiences of sustained intimacy		VALUES-CLARIFICATION Establishing own codes
		Internalised moral judgements	Friends	material intellectual emotional sexual
		Relativistic thinking		spiritual
			Peer group	'LIVING SKILLS' Cooking Washing Budgeting Maintaining health

Figure 2: Summary of Egan-Cowan Model for Early Adulthood and Pre-Middle Age

Age	Life Stage	Developmental Tasks	Basic Human Support	Knowledge and skills for:
23 to 30	Early Adulthood	Family living Initial parenting Career development Lifestyle management Capacity for commitment	Partner New family Friends Workmates Surrounding community	FAMILY MANAGEMENT financial organisational INTERPERSONAL SKILLS negotiating conflict-resolution PARENTING ROLE CLARIFICATION discrimination integration
30 to 35	Pre-Middle Age	Re-evaluation and re-dedication to commitments Parenting of older children Dealing with commitment re-evaluation and part of significant others	Family and partner Workmates Friends Surrounding community	RE-EVALUATION self, role relationships career lifestyle DECISION RENEWAL INTERPERSONAL establishing broadly-based interpersonal support system

In the normal process of meeting and mastering new challenges, individuals experience change. This is the crux of the Egan-Cowan model - that being faced by challenge is to be expected and that taking on the challenge is the pathway to personal development. There will be positive and negative outcomes, depending on the adequacy of knowledge, skills and resources available to the person from within and without. Mature age students, for example, will find that teachers again become influential members of their key systems. Their support (or lack of it) may be crucial to developmental outcomes.

Those familiar with our research study will be aware that we found the principal learning difficulties encountered by students moving from secondary study to higher education to be related firstly to motivation, next to time-organisation and study-management and finally to specific study skills such as reading, note-taking and writing. In our earlier paper (Hancock and Bowden, 1982) we showed that such difficulties were predictable from the Egan-Cowan developmental model. Egan and Cowan suggest that individuals in this stage of life are undertaking certain developmental tasks - to establish individual identity, career direction and personal independence. Hence motivational problems relating to doubt about specific ambitions and even doubts about self-worth might be expected to be the norm rather than the exception - and so we found in our study. Difficulties in self-management are also predictable and the working knowledge and skills which Egan and Cowan describe as needing to be acquired to master the tasks of this life stage are just those with which students in our study were found to be grappling.

Thus we contended that the whole matter of learning skills in higher education as well as perceived transition difficulties should not be regarded as a particular 'problem' for students moving from secondary to tertiary study; nor should such lack of skills in coping with the new study environment be viewed as evidence of something gone wrong. Rather the acquiring of competence in this area should be seen as just one aspect of a developmental network related to their stage in life.

As indicated, we were dealing in that paper with the transition of school-leavers to tertiary education. Students in early adulthood (22 to 30 years of age) now form a sub-group of comparable size while a significant number are entering higher education during an even later life stage. Obviously students in these latter groups enter their courses with experience and motivations quite different from those of late adolescent school leavers. The purpose of this paper is to consider whether the relationship between the transition experience of school leavers and the development tasks they face as late adolescents can be extended to mature age learners. Two case studies are described, one for each of the Egan-Cowan life stages, and they are analysed with respect to the Egan-Cowan developmental model. The hypothesis to be tested is that the difference between the learning experiences of students of various ages are at least partially predictable in terms of their stage in their life-cycle.

Few if any of the elements of this paper are new. We have found it useful in practice however to provide teachers with a reasoned argument for the position we take and the assertions we make. The relationship between the learning experiences and stage of life needs to be demonstrated and not just assumed.

There are many reported difficulties and advantages of returning to study at a later stage in life. We are not reviewing them in detail here but Isaacs (1982) and Knox (1977) are useful references. It is worthwhile to note a comment by Isaacs:

> "A careful examination of the literature on mature age students and their presence in higher education reveals a set of stereotypes which frequently being mutually contrary or contradictory, must be treated cautiously." (p 5)

We believe that the Egan-Cowan model of human development can help us to understand some of the apparent contradictions. Different mature age students may be in different life stages; they may have dealt with earlier developmental tasks to a greater or lesser extent; their life style may hinder or help them deal with the developmental tasks currently facing them. Each student is in some way unique as a person and therefore as a student. It is not surprising that stereotypes presented in various reports are often contradictory. Nevertheless, they are usually recognisable: most readers know of some mature age students with similar characteristics. We believe that the Egan-Cowan model provides a framework on which to build an understanding of such cases and one which can be useful to teachers in dealing with individuals in their classes.

Let us consider two cases we have encountered in recent years. One is a full-time male university student, Ken, who fits into the young adulthood life stage. The second one, Margaret, had in pre-middle age taken up part-time study at a suburban college of advanced education (CAE). We do not present these cases as stereotypes, although they have some recognisable characteristics, but to enable us to show how the Egan-Cowan framework can be applied to better understand their learning experience and, by a similar process, the learning experiences of other students.

KEN

Ken was a 25-year-old Commerce/Law student enrolled in Economics, Accounting, Constitutional & Administrative Law, and Economic History in his first year at a major city university. To undertake the degrees of his choice, he had moved from his smaller home city where his father held a senior position in the State Public Service and his mother was active in a number of charitable organisations. An only child, Ken had attended the same private school for boys from kindergarten on.

Although considered a very bright student, Ken had insisted on leaving school after his sixteenth birthday. He was soon employed in the public service - as a clerk in the State Attorney General's department. In three years he had become the senior clerk of one section and was living comfortably and quite independently from his parents. However he soon felt locked in and dissatisfied. His area of responsibility was very limited, and his work had long since become routine and lacking challenge, while his interest in its legal content had increased. Ken realised that without qualifications he would not gain further promotion within the service or a position that interested him elsewhere.

Although against his leaving school in the first place, his parents had been pleased to see him settle into a secure and stable lifestyle. They were against his decision to throw it all in to undertake full time tertiary study - particularly the long haul through to combined degrees in Commerce and Law - one which precipitated an interstate move. Determined on his own path, however, Ken had completed matriculation in two years at night school with excellent grades, was accepted into the university of his choice and had moved into a student house in a strange city. As Ken put it, "I knew one street name in the city and one person - me - and wasn't so sure I knew me too well, either!"

Ken had to manage on the independent student allowance, and the effects of reduced finances were soon keenly felt, along with the loss of independently earned means. Also, the estrangement with his parents and girlfriend was more than one of geographical distance. Already unsure of his capacity to achieve the academic standards he sought, Ken felt driven to prove to them that he had taken the right step. He worked long and hard and increasingly ineffectively - not allowing himself recreation - "most of the things I liked to do before cost money, and I told myself I should be spending the time studying anyway, if I wanted to do well". His new housemates gave up asking him to join them and left him alone.

The marks given his early assignments did not reflect such conscientiousness. Ken became dispirited and self-punishing, but more determined to pursue an unremitting programme of self-denial and study in order to keep up with the other younger students in his courses who seemed to be managing better than he was. He was angry at the sort of detail required in assignments and exams about topics which he regarded as completely irrelevant to real life. However, the only way he could see to achieve his aims was to continue to study to the exclusion of all other activities and to try to cover the whole syllabus. He found the latter difficult however when the material did not relate to the sorts of problems he expected to face in his anticipated career.

The pattern of mediocre grades continued. By the beginning of third term he felt "paralysed, sitting at the desk for hours absorbing nothing - always tired - sleeping fitfully - blocked." While too proud to seek help earlier, Ken now decided to do so, as a last effort before withdrawing from the course and the personal failure that signified for him.

MARGARET

Margaret was a thirty-five year old part-time student in Arts in a suburban CAE near where she had lived her whole life. She had returned to study after a break of eighteen years. Immediately upon completing matriculation at high school, she had married the boy she had been dating for several years. After two years, she gave up her office job to have a baby. Two more followed. She stayed at home looking after her family for the next sixteen years.

Two things motivated her to return to study. Firstly she wanted to 'do' something of her own. She had begun to develop doubts about remaining 'just a housewife'. Her husband had advanced in his career and spent a good deal of time travelling interstate and overseas. He now looked to her to 'run the house', a far cry from earlier years when they did most things together. She had let her old friendship network lapse and felt increasingly isolated. In addition, she saw her children developing interest in their study and each seemed intent on pursuing a tertiary education. Margaret thought that enrolling in a course might help her to stay in touch with them and enhance their respect for her. There was a third source of motivation which she rarely allowed to surface. She had a vague notion that completion of the arts course might lead her to develop a career for herself. She had no idea in what area of work however and, whenever the thought occurred to her, Margaret dismissed it from her mind as something which probably wouldn't happen. It had been a long time since she had questioned her own life goals and she was concerned that there was no clear answer in view.

Margaret found the early weeks at college both exciting and bewildering. The hustle and bustle of a fairly large campus exhilarated her and she enjoyed simply being in the midst of it. It was so different from anything she had experienced before. However, she also found it somewhat confusing. The disjointed programme of lectures and tutorials made her feel uneasy; sometimes on some days several lectures in succession, on other occasions only one tutorial in the evening, each session dealing with different subjects or at least different topics. She found most topics interesting but couldn't quite see how they fitted together and certainly couldn't imagine how they would lead to the thing lurking in the back of her mind - a career of her own.

The lectures themselves presented no problems for Margaret. She was eager to listen and learn and had little difficulty with note-taking. She was a fairly well-organised person and developed a system of indexing and cross-referencing information fairly quickly. One thing which concerned her was the ambiguity about what was examinable and what was not. Some of her lecturers and tutors occasionally prefaced a discussion by saying the particular topic was of interest and worth following up but "of course, it's not examinable". She often consulted her teachers after classes and tried to find out just what was required for assessment purposes and what was not but she was never really satisfied by their responses. It all seemed so vague and not at all like the matriculation year at high school where the syllabus requirements were laid out in great detail.

During tutorials, but also often in discussion afterwards, Margaret was daunted by the apparent ease with which her fellow students seemed to grasp the new material. There were not many other mature age students in most of her classes and those few expressed the same sense of inferiority she felt compared with the school-leavers. Margaret wondered whether she really was capable of completing her studies and thought that perhaps, as she'd grown older, her intellectual capacities had declined.

Margaret's family had supported her decision to enrol but friction grew within the family as her time-table clashed with those of her husband and children. They found they had to do far more things for themselves around the house than before and her husband became moody when she went off by herself to study or write up an assignment. She didn't want to give up the freedom the new student role was giving her but neither did she wish her relationships with family members to suffer. She especially wanted to pass her first year and not become the failure which she felt her family might want her to be. The trouble was that she doubted her abilities; she wasn't coping with her study and didn't know what to do about it.

Let us now refer back to Figures 1 and 2 and consider how Ken and Margaret fit within the Egan-Cowan model. Consider Ken first of all. He appears to have had the developmental resources to master many of the tasks of the late adolescence life stage. He was living and working independently, making career and personal decisions, relating to others according to his own code, and had established adequate human supports within his community. It is likely however that only now is relativistic thinking required of him and it has suddenly become very important.

When we look at the next stage, though, we find that Ken has lost ground in some important areas - a result of the new career direction he had taken. Obviously he is seriously lacking the basic human support that Egan and Cowan stress as essential to development at any stage in life. By moving interstate he has cut himself off from old friends, workmates, the family community, and the intimate relationship with his girlfriend. He has not responded to the initial overtures made by his housemates, on which he might begin to build a new friendship network. For this reason alone it is not surprising that Ken has ceased to thrive as a person and as a student.

In coming to grips with the tasks of career development and of rearranging a lifestyle in keeping with the educational goals he has set himself, Ken has quite deliberately postponed the tasks of family living and initial parenting. He is not yet needing to test the knowledge and skills required for mastery of such tasks. In a career sense, however, he has demonstrated a real capacity for commitment. This commitment though, has been expressed in a single-mindedness which threatens both his personal life and his learning. In addition, although a highly motivated and industrious student, Ken faces the difficulties that most adults returning to study in higher education do: they lack experience with the sorts of learning skills appropriate to their study and they feel a strong sense of inferiority when comparing themselves with school leavers (Isaacs, 1982, p 37).

In Egan-Cowan terms, Margaret seems to have passed through the earlier stages of late adolescence and young adulthood with no marked deficiencies. She developed a strong sense of her own identity as a healthy, active person gainfully employed in a useful occupation. She was able to adapt to a changed role of housewife and mother. Her level of commitment to family living and managing the lifestyle she and her husband had developed to their mutual satisfaction was high indeed. However she has now reached a stage in her life when her commitments need to be re-evaluated. As she sees her children, to whom she has devoted herself almost totally, become less dependent on her and likely in a few years to develop their own life styles separate from her, Margaret wonders what life will hold for her - not in any desperate way but with a real sense of lost purpose. She wants to continue to 'be somebody' and she would like her children to continue to respect her for herself as they grow older and more knowledgeable.

In this one sense, Margaret is more like the adolescent school-leaver. While Ken is studying with specific goals in view, Margaret is studying in the hope that goals will emerge. She has an idea that she wants to understand more about the world, she would like to qualify herself for some sort of job but she is not quite sure what in particular. She is also attempting to develop a part of her life independent of her family and to review her role and life goals. The parallels between late adolescence (working towards first evaluation of life goals and independence) and those of pre-middle age (the re-evaluation and renewal of independence) are clear. Margaret appears to be engaged in just the kinds of developmental tasks that Egan and Cowan regard as normal for this life stage and to possess most of the resources needed to reach a desirable outcome.

In seeking renewal through formal study, however, Margaret also shares with Ken the adult learning problems that Isaacs describes. However she lacks Ken's strong sense of purpose in undertaking academic work. Where his study leads to a new career, Margaret is less clearly motivated and her commitment uncertain, as the outcome for her is as yet undefined.

How do these various facets of their personal development affect the way Ken and Margaret approach their study? We see that Ken's singlemindedness and career orientation cause him to take a very narrow approach to learning. He is impatient to move on to topics which will be clearly applicable to his chosen career and he cannot tolerate subjects or topics which appear irrelevant. He lacks skills in managing his study and does not realise what has gone wrong. Margaret is inhibited by the same sense of inferiority and further so by her lack of specific ambition. Also, her only experience was not only many years ago but also of a different kind. She had then been closely directed and supervised. Hence the independent approach now required of her is new and alien. Certainly she lacks appropriate learning skills but more seriously the drive and confidence to find out for herself what to do. She looks to her tutors and lecturers to tell her just what to study and is confused by their unwillingness to be so prescriptive.

The difficulties described for Ken and Margaret may be solved in a number of ways. Attention to their needs must come from those human resources around them - specifically family and teachers in these cases. However, it should be clear from the above discussion that mere provision of a study skills course on reading, note-taking and essay-writing will not be adequate. The solutions must involve activities within the course - in lectures and tutorials and in institutional services - so that the whole person is involved. Teachers need to become aware of the personalities of their students and adjust their behaviour to enhance the chances of students' developing as mature independent learners. This does not mean that tertiary teachers need to become expert psychologists. However, by spending time outside classes getting to know their students better, lecturers and tutors can create a climate which enables each individual student to gain confidence in learning. This is as true of those returning to study at a later stage in life as it is of adolescent school-leavers.

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STUDENT JUDGEMENTS OF PROFESSIONAL COURSES

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INTRODUCTION

Professional socialization has been defined as the process whereby the recruit learns and internalizes the norms and culture of the profession he has elected to enter, so that standards of performance and ethics are maintained among new practitioners (Anderson and Western, 1972, p. 291). However, the separation of pre-service and in-service learning has led to controversy concerning the effects of the training phase and evident disfunctions between theory and practice. In teacher-education there is continuing concern over the differences between the college and the classroom environment, as students report discontinuities between what they do in courses and what they do in schools, and express uneasiness about the practicality of the ideas they have developed (Gibson, 1976; Campbell et al., 1979).

Although government manpower planning for population projections has reduced the number of students commencing teacher education, teacher trainees remain the largest single group in non-university tertiary education (25% in 1981) and students undertaking education courses form a sizeable proportion of university enrolments (7.6% in 1981). Meanwhile, the aims, content and structure of pre-service education have come under constant scrutiny (Bassett et al., 1978; Auchmuty et al., 1980) culminating in the 1981 report of the Senate Committee of Inquiry which emphasized:

> "Schools see themselves as being asked to shoulder a growing number of social responsibilities ... These ... range from career education, consumer education, sex education, to education on drug abuse and the role of the media" (1981, p. 5).

In the face of such significant changes in the teacher role, the task of appropriate and effective preparation assumes new importance.

This paper examines perceptions and judgements of their course expressed by a cohort of student teachers at a Brisbane College of Advanced Education, in their final year of training in 1978, and after their first year of teaching in Brisbane schools. Comparisons will be made to similar sections of the ongoing Anderson, Western and Williams longitudinal study of university students first contacted in 1967 when enrolled in arts and science/education courses. The most recent follow-up study of teachers, in 1982, showed that, even after ten years of practice, they still held strong views about the efficacy of their professional training course.

METHODOLOGY

Samples were drawn from among students enrolled in primary and specialist secondary courses at the Kelvin Grove Campus of the Brisbane College of Advanced Education. Questionnaires were completed by trainees at the commencement of their course in February 1976, at the start of the second year, shortly before graduation and at the completion of a year of teaching. Due to the anonymity of original coding and the variation of samples from year to year, all findings were presented in the form of a "trend study" showing the general reaction of a series of similar subjects. By comparison, results from the Anderson and Western survey represent a unique body of longitudinal data collected from 3,000 students in six Australian universities by means of a series of questionnaires over fourteen years of pre- and in-service professional socialization in the fields of Law, Engineering, Medicine and Teaching. The present paper refers to unpublished results of the most recent stage of the survey among Teachers. Questions posed in both the College and the University studies related to the attractions of teaching and career plans, the nature of the learning environment and in-process and retrospective judgements of the value of training.

Among the College students, a random sub-sample of forty was interviewed in 1978 and, at the same time, a series of focussed group interviews with all groups of primary and secondary teachers was carried out by an external interviewer. The last method proved particularly fruitful, for not only was this an efficient exercise in that all students were given the opportunity to express personal views, but the group atmosphere greatly aided the emergence and extension of ideas.

In the final phase of the College-based research, a short survey was sent to all graduates known to be employed by the Queensland Department of Education. Replies from 118 primary school teachers and 108 secondary school teachers represented a response rate of 67% and 75% respectively. In-depth interviews, which called for a retrospective judgement of their training in the light of their first year's experience, were conducted among a sub-sample of 44 beginning teachers.

Among the University graduates, 459 respondents of the original 1,277 teacher-trainees answered questionnaires in 1982. They replied to enquiries about the substance and standard of their courses, and their comments on the overall nature of the Diploma of Education course were recorded, as well as responses to the structured questions. Thus, for all three groups, final-year students, first-year teachers and those who had ten years of experience, the general opinions recorded in the structured survey responses were illustrated and clarified by specific criticisms expressed in informal terms.

RESULTS

Four major areas for discussion may be identified among the wide range of response and comment. Firstly, the dominant and recurring theme was the perceived disjunction between theory in training and practice in the profession. This was emphasised by the second area for concern: course content and weighting given to fields of study. Thirdly, teachers were able to identify particular positive and negative aspects of their training and finally, some attempt was made to discover how much input and control the students felt they had over the nature of their courses.

(a) Theory and Practice

Discussion of the relationship between theory and practice in teacher education seems to operate in a number of areas. For example, the accepted model of background educational studies seems far removed from the "sink or swim" situation of the first appointment, lecturers are criticized for their lack of contact with the practical problems of the classroom and, associated with this, is the plea by trainees for more time at practising schools under the supervision of teachers.

In the group interviews conducted in their final year, students were asked to talk about their perceptions of the three-year course. A striking difference emerged between primary and secondary trainees. The former viewed their course as a mass of disintegrated and often irrelevant experiences that had not prepared them to operate effectively in the classroom. They seemed to have an underlying basic assumption that a definite pedagogic method existed - coupled with resentment that this had not been taught to them adequately. While recognising that, as professionals, they needed an education which was "more than just an apprenticeship", they were experiencing great anxiety at their lack of what they described as a "vocational" or "trade training". They mentioned theory of education subjects as "worthless" when faced with practical classroom tasks, such as curriculum construction and the teaching of reading. As one student complained:

> "They teach panel beaters how to beat panels, why can't they teach teachers how to teach?"

By contrast, secondary trainees viewed their course favourably, stating that it had given them confidence, maturity and a sound theoretical background for the teaching of their specialist subjects. The essential variation between primary and secondary students' experience seemed to rest in the difference between child-centred and subject-centred approaches for, despite contemporary emphasis on the former method, secondary trainees viewed teaching primarily as imparting knowledge of their specialist discipline. However, rather than detracting from sensitivity in teaching, commitment and confidence in a subject seemed to provide the foundation for development which had appeared lacking in the primary course. Each group - Mathematics/ Science, Commerce, Home Economics, Music, Physical Education and Art - viewed their own subject as crucial in the school curriculum, but also saw College as having developed other personal knowledge and abilities. One scientist explained:

> "You feel you are an accomplished teacher if you know you are more than that."

And an art student concluded:

> "Art is a love and a hobby, as well as a career ... so long as your love of the subject isn't greater than for the people you are dealing with."

This difference in appreciation of the College course with respect to its provision of a firm grounding for practice, was reiterated in assessment of the course by beginning teachers a year later:

Table 1

Beginning Teacher Perceptions of their Teacher Education as Preparation for Teaching, by Level of Teaching

(Column Percentages)

	Primary	Secondary
College gave knowledge of what to teach and how to teach it	3	22
College gave techniques for discipline maintenance	12	7
College gave knowledge of what to teach; practising school showed how to teach	6	7
Teacher education was little help at all in any respect	44	16
Teacher education gave knowledge of what to teach	2	32
Curriculum construction and lesson planning learnt	2	2
Actual teaching materials prepared	1	5
Idealistic view of education gained	2	1
Personal development enhanced	18	7
Theoretical basis of teaching learnt	9	0
No answer	1	1
	(n = 118)	(n = 108)

A substantial proportion of primary teachers were dissatisfied with their teacher education, whereas more than half the secondary teachers reported having learned "what" and "how" to teach.

The subject-orientation of secondary teaching is also indicated among the experienced teachers in the Anderson, Western and Williams survey when investigating the comparative importance of the first degree and the education sections of their training.

Table 2

Proposal: Formal postgraduate Education is far more Important than the first Degree as a Preparation for the Teaching Profession

	Percentage
No answer	1
Strongly agree	8
Agree	25
Neutral	25
Disagree	35
Strongly disagree	6
Not applicable	1
	(n = 459)

For 35% of teachers the first degree remains the most important section of their training.

Ironically, it seems that it is the section of the course specifically structured for practical professional training which is considered most lacking. For the majority of students, educational theory was of little help when faced with the immediate everyday tasks of planning, organization and class control. As one beginning teacher concluded:

> "From the knowledge point of view College was quite good. Preparation for day-to-day teaching - no good. The rabble of children - discipline - no good. We could have had more micro-teaching, practising the actual mechanics of teaching, and more contact with the kids and the sorts of problems they have" (secondary teacher, Art)

COURSE CONTENT AND STRUCTURE

The basic problem of combining the theoretical and practical components of professional tertiary education continues as the major concern in any more specific consideration of the nature of the course. Again interesting differences between primary and secondary trainees emerge.

In the group interviews, primary trainees were far more likely to consider the course as far too "academic". These trainees claimed that all useful learning was derived from practising school and lamented the time they had wasted in "Mickey Mouse subjects", "worthless subjects" and topics of "no practical use whatsoever". Even though they recognised College as a time of personal development, it was the areas of "general study" or contextual courses - history, psychology, sociology, philosophy - which were most strongly criticised.

Paradoxically, against the background of their strong commitment to their specialist subjects, the secondary trainees appreciated their extra grounding in psychology, sociology and librarianship and expressed envy of the primary trainees who, it was felt, had more opportunity to try a range of subjects. They expressed regret that their "personal enrichment" had not covered a variety of interests and science students especially regretted the lack of opportunity to experiment with art and craft or music. Table 3 shows the difference in recognition of "personal development" as a feature of the course.

From the vantage point of their first appointment, the beginning teachers saw the apportionment of in-College and in-practice time as being the crucial issues. When asked to suggest improvements in their pre-service courses in the light of their experience, some 53% of primary teachers and 64% of secondary teachers simply requested much more time be spent in schools teaching as part of the course. Primary teachers (23% of them) also requested much more time on curriculum planning and construction while the second major improvement requested by secondary teachers (15% of them) related to more time being given to discipline maintenance techniques.

Among a wide range of comments from the University-graduate, experienced teachers, the highest proportion of specific criticism (16%) claimed that the course had been "too academic" and the proposal of a "general" education was rejected.

Table 3

Proposal: The Education Course in which I was enrolled provided too specialised Training. It should have Included more broadly-based Cultural Subjects

	Percentage
No answer	1
Strongly agree	3
Agree	21
Neutral	26
Disagree	43
Strongly disagree	5
Not applicable	1
	(n = 459)

It seems likely that, among this group, the basic degree supplied the general experiences of tertiary education, while the Diploma of Education was expected to be highly specialised.

For all three groups of trainees and practitioners, comments clearly illustrated that it was during the periods of teacher practice that most professional role-learning had occurred, and consequently, there were many requests for more time to be spent in schools. However, because of the perceived separation of the College from the school environment, this "real" learning became a fearful testing time and a stress-ridden "survival-course" experience.

When questioning third-year students, evaluation of courses was often linked with evaluation of the lecturer. Inevitably, in the light of their own training, students viewed not only the subject matter, but the manner in which it was taught, as vital to their course work. Certain methods of teaching seemed particularly inappropriate when contrasted with what was expected of the students. One respondent summed up the comments of the more than 50 students when writing about this, as follows:

> "We were expected to be creative in learning seminars and discussions when some lecturers read from fifty-year-old yellow notes and didn't even lift their eyes from the page. It was depressing and certainly not encouraging."

On the other hand, positive models were of great assistance. After ten years of practice, one teacher expressed the appreciation of many when she explained:

> "the incidental learning from men and women who were wonderfully dedicated and professional teachers was of far more use to me than the in-depth studies in many fields."

Finally, another factor which emerged as important in course-work was the organization of students in permanent sub-groups according to teaching level and specialist subjects. A high degree of group loyalty and co-operation seems to have developed throughout the three years of pre-service training. While primary teachers explained that the College situation was too competitive for the group to operate effectively, they spoke of resource-sharing and emotional support as essential during teaching practice periods, and secondary students spoke of the whole course as an exercise in "getting through together". As Becker (1961, p. 46) notes:

> "Sub-cultures develop when a number of people are faced with common problems and interact both intensively and extensively in the effort to find solutions for them. This intensive interaction in an isolated group produces a particularly meaningful and essential array of those understandings and agreements we call student culture."

POSITIVE AND NEGATIVE ASPECTS OF THE COURSE

In the survey given to students at the end of their course they were asked to identify any outstanding positive or negative aspects from among their total training experience. Eighty-seven per cent of the primary students and 82% of secondary students identified significant aspects of their course. Positive aspects included: College life, the course, lecturers, specific subjects, teaching practice and fieldwork. Both sets of students emphasised the general satisfaction of teaching practice, and both mentioned the "practical nature" of specific subjects as helpful. The third main area attracting positive comments centred on the College academic staff and their concern for student welfare and their inspiration. Comments such as the following were common:

> "What I found helpful was the guidance I got from some lecturers when I sought assistance and the understanding that even at the conclusion of the course both the College facilities and these lecturers were available to us."

On the negative side the strong effect of staff-student relationships was again evident for the single negative aspect most often mentioned by both groups was "teaching methods of lecturers poor models for students". Both groups criticised irrelevance, repetition and inflexibility in the course structure with primary students particularly critical of specific subjects; both groups mentioned problems of practice, such as relationships with supervising teachers and difficulties with curriculum construction.

This overall view was highlighted by some of the opinions expressed by the experienced teachers in their retrospective judgements.

Table 4

General Comments on Training, i.e. on Diploma of Education

	Percentage
No comment	10
Excellent/Very good course	8
Adequate/Satisfactory	19
Inadequate in some areas	10
Too academic - not specialised	17
Irrelevant	9
Little use for early years of teaching	3
Process of education in Diploma of Education year was good but relevance for teaching questionable	12
Degree course a good basis for teaching BUT Diploma of Education not much use	9
Other	4
Not applicable	1
	(n = 459)

STUDENT INPUT INTO THE COLLEGE COURSE

Over the decade of "student unrest", research into tertiary education emphasised the need to include students in planning their own courses. In their review of factors affecting student performance, Thomas and his associates (1974) accentuated the positive effect of student involvement. In the group interviews we broached the matter of student input.

Each of the primary groups interviewed strongly emphasised that they had no opportunity whatsoever to change their course. Students expressed particular regret that, though they were occasionally asked to comment on their courses, there was no response to their comments and that any change which they might achieve would benefit only future students and not themselves. These students believed that this produced a kind of negative passivity through their college course. As one primary student put it, "We put up with it, but don't take any notice of it."

The secondary students' reactions to this same issue showed similar concern. Trainees noted that staff professed openness to criticism, but this did not work in practice. Complaints, the students explained, usually terminated at departmental level or were lost. Although some specialist groups reported acceptance and consultation, students in all groups felt that in complaining they ran the risk of being "labelled" as either a trouble-maker or as unable to cope, and subsequently disadvantaged. A physical education trainee put this succinctly, "You'll be copped in some way."

The reasons for students feeling helpless rested on three issues. They felt their suggestions and complaints became lost in the bureaucratic hierarchy. Secondly they feared to be marked by complaining and criticising and clearly such fears resulted in conformity, passivity and a generally negative attitude. Finally there was a particularly frustrating response to their suggestions - the presentation of an appearance of flexibility and approachability, while not responding in reality. The attitude was precisely described by one student as the "I-hear-what-you-say" reaction. To the students it indicated an inconsistency between principle and practice.

CONCLUSIONS

In professional education the separation of pre-service from in-service learning has led to controversy concerning the effects of the training phase. Becker and his associates (1961) have suggested that the training institution is not a phase in the process of professional socialization, but rather makes its own demands on the student who must satisfy these in order to graduate and then be permitted to assume a professional role. Certainly, for the groups of graduands, beginning and experienced teachers whose opinions have been reported in this study, there seems a clear division between valuation of what is learnt in the training course and what is learnt in the classroom. Students seem to be "getting through together" as they put it, in the face of their educators' and their own, inability to relate theory to practice.

A recent discussion of theory and practice in teacher education by William Taylor (1978) stresses that a number of factors have combined to throw this issue into sharp relief. The introduction of College-based degree courses has meant College staff re-thinking the purpose and organization of both pre-service and in-service courses of teacher education. The development of new teaching methods, and the presence at secondary schools of greater numbers of young people in a time of high youth unemployment, have both meant student teachers seeking even greater relevance in their training. Finally, the model of education studies which stressed the function of the contributing disciplines of history, philosophy, psychology and sociology has been criticised as inappropriate for teacher education by both Marxists and those seeking an interdisciplinary approach to what they term "critical issues" in education. In his address to the 1979 South Pacific

Association of Teacher Education Conference, Dr Malcolm Skilbeck,[1] stressed that course designs for teacher education must "break out of their prevailing orthodoxies of psychology, sociology and philosophy of education into a more unified view of knowledge and a more action-oriented concept of theory."

Discussion of the relationship between theory and practice seems to operate on several levels. In our study we noted students' criticisms of what they perceived as "irrelevant" areas of "academic" education and their pleas for a concentration on the learning of practical pedagogic skills. It is particularly interesting to note that the group of students most highly dependent on the acquisition of general teaching skills were the primary trainees who, having no specialist "core" to their tertiary education, perceived the whole course as disjointed. Whatever the criticisms or insecurities of secondary trainees, their love for their subject and security in its knowledge gave them a confidence missing in the primary trainees who, it seemed, were searching for a specialty. At the very least the subject-oriented approach provides basic material and methodology for classroom teaching.

Another level involves the incorporation of "teaching practice" in the course. As a valued, yet stressful, time for students, practice presents a dilemma to lecturers faced with the problem of providing students with both a theoretical appreciation of their problems and the survival skills necessary for their immediate alleviation. Taylor (1978) explains the consequences of this as resulting in the view that considerations of educational theory are best left until students have a clear idea of the problems on which theory might shed some light, i.e. after the first few years of teaching.

However, as Taylor again points out, opposed to this idea is the belief that without the study of educational theory before their first teaching appointments, students will simply remain conservative in their future classroom practice. Without the benefit of an array of educational concepts to order their experience from teaching practice, students will have to fall back on other principles to order their experience and these will no doubt be derived from their own school days. In short, they will teach as they were taught.

A further level for concern rests in the fact that "trainee practitioners" are continually exposed to positive and negative models among their own teachers. Judging by trainees' comments on lecturers' contact with schools, individual teaching styles and willingness to offer advice or accept criticism it appears that a great deal of incidental and indirect learning is taking place, which may represent socialization into a teaching role at a most fundamental level. The role of the "institutionalized" practitioner certainly warrants further investigation.

Finally, in the face of so many pleas for concentration on the essential, basic and practical skills of teaching, we may have to reconsider the past emphasis on the gaining of esoteric knowledge, which is the hallmark of the "professional", and give new attention to the mundanities of "practice". The challenge to tertiary education in the professions is to re-align the concepts of "professional" and "practice" in such a way that training does not remain removed from the occupational environment. The crux of criticism rests in the conclusion of a primary teacher:

> "Theoretically they prepare you well but practically they're not much help. Planning work is one of the biggest problems I've got. Some problems here I can cope against, but the main thing is coming every day and finding 30 kids there, day after day. College is unroutine - this is routine. One doesn't help you with the other."

NOTE

1. Director of the Curriculum Development Centre, Canberra

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THE IMPACT OF HIGHER EDUCATION: GRADUATES REPORT ON WHAT THEY LEARNT

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Efforts to enhance the quality of higher education, from the viewpoint of students' learning experiences, continue to be constrained by our ignorance of both the long-term effects of education and the connections between these and prior learning experiences. Changes to the curriculum, methods of teaching, assessment procedures, and the wider environment of learning, are obliged to be undertaken in the absence of knowledge of the ways in which the effects of such changes will be reflected in the lives of graduates.

This paper reports some of the findings of a small-scale study of the effects of higher education as perceived by graduates. It is essentially exploratory and speculative in character, and attempts to acknowledge the many difficulties involved in collecting and interpreting data which might throw light on the nature of long-term educational effects.

METHOD

One source of information relevant to this topic lies in individual recollections of learning experiences which are seen to be of enduring significance. The use of such autobiographical material would seem to hold promise for the study of long-term effects because it necessarily reflects, if only in a very partial way, some of the surviving elements of educational experiences. It also reflects the learner's view of what has subsequently proved to be of personal and professional importance. Further, it acknowledges the perspective of the learner rather than that of teachers or institutions. Finally, the collection and interpretation of autobiographical accounts will help to identify the strengths and weaknesses of personal reconstructions as a research tool in a field where there is still great uncertainty as to the most productive directions for research to take.

Some possible deficiencies in this approach can be readily stated but less easily made good. The relationship between what has been learnt (and retained) and the recollection of learning events is clearly a very loose one. We may readily recall learning experiences the content of which is now viewed as being of little or no importance to us. Conversely, we may be quite unable to identify the origins of much of what we now perceive to be of crucial significance to us. Further, we may be mistaken in some identifications of the origins of what we have learnt and, although this seems less likely, in attributing current significance to components of our learning. Finally, brief autobiographical essays are necessarily very selective and constitute a highly refined distillation of a rich complex of experiences extended over several years. It can be assumed, therefore, that they cannot in any way be viewed as a full and faithful account of an individual's learning history and its effects upon later life. Despite these qualifications, a good deal can be gained from the analysis of reflections upon educational experience as I shall hope to indicate in what follows.

The data to be presented were gathered from 22 students enrolled in a higher degree programme. Almost all were engaged in teaching or practising in the health professions and most were medically qualified. They ranged in age from 26 to 55. As a course assignment they were asked to write an account of their 'educational history' with a focus upon what they saw as significant and influential learning experiences during their formal education. The fact that these accounts were produced to meet course requirements may have introduced a bias directed at satisfying what were perceived to be the teacher's interests and expectations.

Most of the autobiographies said something about primary, secondary and tertiary education, and many also included comments on postgraduate education, non-formal learning, and career choice. They constitute a rich body of information on the ways in which these 22 people saw themselves as being to some degree fashioned by our educational institutions. This paper only reports the material relating to tertiary education and, because of its special interest to members of the Society, the comments on factors which were identified as facilitating or obstructing learning.

The analysis and interpretation of personal data of this type presents many difficulties (Grumet, 1981). The accounts were read through many times in order to identify what the authors saw as being of importance to them. No attempt was made to impose pre-determined categories of analysis but instead the salient features of the data were allowed to emerge as a result of repeated inspection. This led to three broad categories of content: cognitive development, the formation of attitudes and values, and factors which were perceived as helping or hindering learning. We begin then, with what was said about the content of what was learnt.

THE CONTENT OF LEARNING

Cognitive Elements

Only two people mentioned the learning of factual material but this is not surprising as the group was asked to focus on what was seen as being particularly significant or influential.

> "I enjoyed Physiology and can recall many details of the laboratory work .... My memories of the content of examinations, especially clinicals and vivas, are much clearer than those of the course on which they were based .... Although it is not easy to recall

> specific learning experiences, there is no doubt that a great deal of miscellaneous material was absorbed as 'general' background. The details one remembers have presumably been reinforced by specific interest and revision over the years."

The fact that only one other person mentioned the detailed factual content of courses could be interpreted as implying that much of it is simply taken for granted. What remains of it forms a substrate for subsequent professional practice or extensions of understanding, a point which is made very well in the following passage.

> "I cannot pinpoint any particularly memorable educational experiences from my undergraduate years. Those items of knowledge and understanding which are most easily recalled come from relatively small group situations -- clinical tutorials, practical obstetrics and oral examinations -- in the later years of the course. I have the feeling, however, that a vast amount of information from this course has been stored away in my memory banks and is accessible in a kind of 'impressionistic' way under controlled circumstances. I certainly cannot control it at will. I am therefore not unhappy about the outcome of this attempt on the part of my teachers to achieve the mass transfer of knowledge -- although I don't retain the details, it has at least given me a useful perspective, a means of access to appropriate sources, and a lot of factual information to associate and reintegrate in the light of later experience."

What is perhaps more surprising, given that almost all of the group had undertaken courses of professional training, is that only three of them mentioned the acquisition of vocational skills. It may again be the case, however, that many of these are also very much taken for granted.

> "...taking case-histories, conducting physical examinations and utilising technical equipment, which are important aspects of the medical curriculum."

> "I remember many of the techniques I learnt in clinical practice, little of the course work and some of the crafts."

> "He taught me to prepare my lessons and science demonstrations impeccably and to carry them off with style."

Ten people made reference to the acquisition of the more general intellectual skills which cut across particular disciplines and constitute what might be described as 'academic thinking.' These include skills such as essay writing, logical thinking, problem-solving, arguing, providing rationales, knowing how to seek further information, and organising one's time and work. The extent to which some of these skills can be said to be highly generalised both with regard to their acquisition and their exercise is a very contentious point but there can be little doubt that they are much less specific than skills such as determining the pH of a soil sample or taking a blood pressure reading.

> "I think I learnt to organise my work and myself, to think theoretically and evaluate concepts, to look things up before I made statements, and that first-draft work should be left in a drawer for a

> week before being re-read and totally re-written several times more."

> "I have realised since finishing at university that I didn't gain so much a body of knowledge as an approach. I became a problem-solver and this had little or nothing to do with the content of the tasks I was set. But most of these tasks had one thing in common -- they required critical thinking."

> "... how to write essays and to argue cogently and logically in them."

> "What I believe I learnt was a capacity to apply logical principles."

There are also skills and attitudes which might be termed pathologies of those which are required for successful intellectual work. Ellison and Simon (1973) have criticised impact studies for not giving sufficient attention to negative effects such as competitive skills, deception of others, and Machiavellian behaviour. The most frequently mentioned of these were the ability to achieve a bare pass in examinations when a much better result could easily have been achieved, and the capacity to learn in such a manner that examinations could be passed without any understanding of the material being studied. These negative effects are usually described as 'learning how to operate the system' and often had their origin in secondary schooling.

> "I was subjected to a conventional medical curriculum, from which I learnt nothing except how to work just sufficiently to scrape through year by year."

> "... pointless exercises in busy laboratories trying to get results that would please the demonstrator without ever understanding what it really meant."

> "I latched on to the idea that to pass you got a clear view of what you were expected to know, and learnt it, word for word. Not much thinking. Just learn the sacred texts. I had no more trouble passing university examinations. Unfortunately, the apparent success of this mind-stunting technique impressed me and retarded my mind's development for years to come."

> "[In high school] ... I consciously began to work the educational system: to limit my study to cramming for examinations, to do the minimum and to aim for a pass .... This continued throughout my undergraduate science degree to the extent that I received very few grades above a bare pass."

Attitudes and Values

The other major area of undergraduate learning, mentioned by ten people, related to attitudes and values involved in professional work. These include respect for scholarship, enthusiasm for teaching, and ways of responding to patients and clients. A number of the accounts indicate that special significance was attached to learning in this area and there is clear evidence of its enduring and influential character. It is worth noting that some of this learning resulted from negative experiences and that it rarely arose from formal teaching or found a place in the curriculum.

> "The memory of poor teaching techniques has always been a stimulus to improve my own attempts."

> "I learnt that doctors were not the benign, kindly, patient-centred people I had previously imagined they were ...."

> "Most of all I remember a noble sense given to us by the head of the School. She taught us to treat patients as if they were our relatives. To ask ourselves: "If I were he what would I like to have happen to me?"

There were also a number of identifications of experiences leading to changes in individuals which were much broader in character and less bound up with professional practice. These include growth in self-confidence, independence and resourcefulness.

> "I respected her scholarship immensely and she became a model for me to emulate. I now feel that she significantly influenced my whole view of women and it is likely that knowing her was the first stage of what has, in later years, become a strong commitment to feminism."

> "... gradually the realisation came to me that I had learnt, by failing, that I had to make my own decisions .... I have always been grateful to those four university years. I think the only lesson I learnt was just that one."

> "... self-directed research, flexibility of approach and resourcefulness and tenacity in grappling with the varying demands of university and family life."

HELPING AND HINDERING LEARNING

The material is rich in comments on factors which were seen as promoting or impeding individual learning. These concern either teachers or the broader environment in which learning had its setting. Subject-matter preferences and a characteristic orientation towards the activity of learning are probably already well-formed by the time tertiary education is embarked upon and it could be expected that congruence between an individual's approach to learning and the institutional environment would have a positive effect. Almost all of the comments on this, however, were quite negative and reveal strong feelings of hostility and disappointment at encountering what was seen as an unrewarding, unproductive and frustrating experience.

> "The medical curriculum, then, seemed designed to frustrate idealism and repress commonsense .... Its great defect seemed to be the anonymity it inflicted on students. No-one cared about you."

> "Nothing much stands out in my mind about university, except a feeling of being anonymous .... with the impression that no-one cared whether I passed or failed."

> "Large impersonal first-year classes seemed irreconcilable with the content of the courses. What counted in examinations was not

> personal development but producing the required answers."

> "Much of my university career is a complete blank to me; I have only vague recollections of some classes held in enormous lecture rooms .... Educationally these were barren years, principally, I believe, because of the poverty of the teaching methods employed and the impersonality of the institution. Out of five subjects I remember with gratitude only two, and these were the subjects in which I was in smaller classes and where I got to know some of the lecturing staff. In all the others I never once approached a lecturer or tutor during the three years of my degree."

There was also a number of negative remarks on members of the staff who were seen as being uninterested in students, incompetent as teachers, and less than adequate as models for future professionals to emulate.

> "In the last two years, when clinical training began, tutors rarely displayed a concern for patients .... they were indifferent models."

> "Lecturers often took no trouble to hide their boredom, handed down information far better set out in textbooks."

> "One lecturer discouraged questions and seemed to dislike students."

> "I did not really enjoy medicine .... I only remember one lecturer as capturing my interest and real approval .... At one lecture by a well-known surgeon, all forty of us medical students were invited to PR a patient lying on the lecture bench -- I couldn't do it!"

> "Only in subjects where the content interested me (there were only three of these) or the teacher enthused me (there was only one of these) did I gain higher grades."

Most of the significant learning which was reported, especially in the area of attitudes and values, was associated with individual teachers rather than with courses of formal instruction and additional evidence for this may be found in some of the earlier examples of the content of what was learnt.

> "I learnt to love Chaucer from the enthusiasm of the English professor."

> "His principal lesson to me was that of enthusiasm for teaching; he set out to demonstrate to us all that the school-teacher is first and foremost a showman whose job is to impress the pupils with polished performances."

> "I learnt through the influence of much-admired staff nurses and sisters rather than by formal instruction."

> "A history teacher whose manner of speech and choice of words had a great influence on me."

CONCLUSIONS

The analysis and interpretation of personal data of this type presents many difficulties (Grumet, 1981; Langness and Frank, 1981). The accounts were read through many times in order to identify what the authors saw as being of importance to them. No attempt was made to impose pre-determined categories of analysis but instead the salient features of the data were allowed to emerge as a result of repeated inspection. No independent checks on the accuracy of the analysis have yet been conducted.

The use of autobiographical material as a source of data relevant to investigations of the enduring effects of education appears to offer promise, despite the problems which were outlined earlier. As much recent research on student learning has shown, the import of empirical findings is frequently obscured by unresolved logical and conceptual issues which are philosophical rather than psychological in character. To give just one example, we need to develop our understanding of what is involved in learning to be a botanist or mathematician as distinct from acquiring the more general skills and attitudes involved in academic work. The latter complex of intellectual achievements also requires a great deal of clarificatory analysis. It is essential to tackle problems such as these before investing substantial resources in further data collection.

Finally, a few comments on some tentative inferences from the findings for the practice and organisation of teaching. The two areas of learning which were identified as being of enduring significance are those concerned with intellectual skills of high generality, and attitudes and values associated with the conduct of academic and professional work. Assuming that we agree about the importance of these we might profitably examine the extent to which they are a major focus of attention in our teaching. Many of the autobiographies suggest that more weight should be given to promoting them and there is some support for this in the findings of Spaeth and Greeley (1970) and the more recent work of Dahlgren (1981).

Although much of the teaching in higher education may be said to exhibit a tendency towards 'factual overkill' a certain amount of factual knowledge is clearly needed in order to provide a scaffolding for the development of understanding and skills. What we do not know is how much of this propositional knowledge is essential for the purpose of fostering higher order intellectual skills.

There is a good deal of evidence in the autobiographies of the role of the environment in facilitating learning. Small classes, use of appropriate teaching methods, and the display of concern by teachers for their students - these were all seen as major factors in promoting learning. This suggests that we should do more to improve the fit between the learning style preferences of students and the way in which the teaching environment is structured. The people whose recollections have been reported here were all successful students yet many expressed strongly negative feelings about their encounters with our educational institutions. For many of them higher education was not a rich source of self-enhancing and deeply satisfying experiences but rather something to be endured for the sake of an extraneous goal. There is little comfort in this for us as teachers.

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CHAPTER 8

HELPING STUDENTS MEET THE DEMANDS OF TERTIARY STUDY

Study skills or learning skills are becoming increasingly a specialised field for research and for professional practice. But there is no denying that any tertiary teacher's role includes student advising and assistance with learning and study skills. Many staff are attuned to this role and are able to help students from the rich basis of their own and others' experience. But many also do not know of research results on student learning, of approaches to helping students learn which have been found successful. Awareness of the knowledge and expertise which are available can equip tertiary teachers to help students with studying. And there seems to be consensus on this - that learning skills are best taught and learnt within a subject context. Helping students to realise their potentials can be a particularly rewarding and satisfying aspect of teaching.

The first paper in this section by Bock, "Essay writing: meaning as a way to language", traces the recent history of 'essays', the conflict between form and function, and deals with student difficulty in essay writing. Bock challenges the way 'essay writing' is divided into content and skills and criticises the skills-without-content assistance often given to students. She describes and discredits examples of the 'key word' analysis which many study skills booklets and advisers advocate in teaching essay writing. She demonstrates how a focus on relationships between words instead may help students to tackle an essay topic in a more analytical way.

Nightingale in her case study "Improving students' writing" describes how a university concerned with students' standard of English expression approached the task of improving English. The working party of which the author was a member came to the conclusion that the University's responsibility does not stop at students who have deficient language skills but that the general standard of written English in the institution can be improved by emphasising language as an essential tool for communicating ideas and trying to improve it in the context of other learning skills and content.

Hubbard's paper,"Tertiary mathematics - some pressing problems", outlines how at the Queensland Institute of Technology remedial help and tutorial assistance are combined so that the students with knowledge deficiencies in mathematics save time and keep up with their course.

Kelly and Shapcott in "Conscious control of learning strategies" provide the theoretical framework for a study of external students. Their research project involves examining the way in which distance students make use of existing feedback opportunities as part of their learning process. Applying findings from research to one's own teaching, discovering that research has relevance to the educational experience, applying scholarship to teaching, is rewarding for the professional teacher.

ESSAY WRITING: MEANING AS A WAY TO LANGUAGE

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> "We have said goodbye to the concept of a static universe ordered into majestic and definable neatness and to the concept of time as a uniformly flowing stream, and [we have] seen the erosion of the idea that great architecture is a matter of the ordering of spaces in relation to climaxes such as the altar, the throne, the theatre proscenium. It becomes less an art of *composition* concerned primarily with the picture which the building makes from certain preferred viewpoints, and more an art of *juxtaposition* in which a most important part is played by the shifting viewpoint of the moving observer and by the superimposition of varied impressions upon one another in an almost unpredictable way. One might almost say that it now invites his participation in an open-ended experience of space rather than his obedience to the direction of an architectural pageant-master." (Gauldie, 1969, p. 79)

What Gauldie has said here is not new, but it touches on the core of what I want to talk about: the conflict between relativism and absolutism, or directionalism as I prefer to call it, in student learning and especially in essay writing, and the reverberations this conflict sends back on language and the meaning of language for those like us who have to help students with their learning processes.

To bridge the rather wide gap between architectural relativism and student bungling, let me introduce the Perry Report of 1968 , in which the Director of Study Counsel at Harvard University, William Perry, makes the point that the basis of student problems in coming to terms with their studies is to a large extent a problem of coming to terms with relativism, of moving from an absolutist to a relativistic-pluralistic outlook, and further on to what Perry obviously sees as the ideal goal, a standpoint of committed relativism. By absolutism in the student context, Perry means the attitude that truth is definable and findable and that *authority* is right. provided, of course, that it is the *right* authority. Relativism, Perry claims, is the individual's revolt against absolutism and Perry defines it as the excessive individualism which denies all external reference points and takes refuge, so to speak, in the response "Well it's really only a question of your opinion against mine then". The third stage in this visibly

Hegelian movement Perry sees as the stage where we move out of absolute relativism - if you will forgive the pun - and commit ourselves again but on a broader basis. We are not looking for the universal truth value of the answer any longer, neither for its purely personal truth value as at the second stage, but for the answer's rightness under conditions, i.e., its truth value in context.

The movement Perry here finds reflected in his students' intellectual-social development is the same Gauldie outlined in the historical development of the concept of beauty and truth in architecture. In a further correspondence to Gauldie's evolutionary view, Perry also places his students' development in a historical context. He analyzed sets of examination questions given at Harvard from the year 1900 till 1960 on the assumption that "the kind of operation called for by an examination question expresses the examiner's conception of knowledge of his subject". And over that period he found "at a conservative estimate" an increase from slightly under 10% to 48% in the number of questions which required a relativistic answering frame, or, as Perry puts it, "two or more frames of reference".

According to Perry, there has, then, been a move towards relativity in outlook in university studies as well as in art; but there is the difference that whereas this move has led to a loosening of form outside universities, inside these institutions it has had the opposite effect. Against this background I want to place what I have to say today about language and meaning and the interrelation between the two as it surfaces in student essays and student problems with writing essays.

As every other composition in this world, an essay is a *Gestalt*. In the case of the essay, the whole arises out of the interplay between form and function. As a *literary* form, the essay is, in Bacon's words, "ancient". As a *form* its job is to provide direction and certainty; and in this regard, it has moved in the opposite direction to other artforms. Novel readers a long time ago abandoned the demand of a neat satisfying all-conclusive ending; and earlier than that, the reader abandoned the liking for the omniscient author who knew, judged and presented his characters directing at every little turn the reader's concept of character and event. Similarly, the drama no longer has to have a beginning, a middle and an end. Not so the essay.

The more the reader has been left to his own directives in other artforms, the more directional the essay has become. It must have a beginning, a middle and an end. The three parts must be interlocked in the set formula: "First you say what you have to say, then you say it, and then you say that you have said it". Furthermore, it must have a central proposition, but only one, otherwise it confuses. And everything else you might want to say has to serve as support for that proposition. And finally, whether visibly subjective or apparently objective in style, its final impression must be that the author is omniscient. "Be positive" we say, "Convince your reader", "don't say 'this essay attempts to show . . .', say 'this essay demonstrates . . .' Don't use passive (i.e., indecisive) forms, use active forms".

In other words, the *form* of the university essay provides certainty and direction; everything, in fact, that its *function* militates against. Universities are places of inquiry, we tell our students. Academics are professional doubters; and universities are therefore places of uncertainty. "For every answer we find, there are likely to be ten new questions raised", as the Dean said in his recent welcome speech to our new students. The function of essays is to give a voice to all this inquiry; its form serves to impose order on the uncertainty, make it intelligible. A good essay in fact arises exactly out of the tension between its form and its function. The function gives life to the form. The form directs and disciplines the function. This means that the form keeps the function under control according to set conventions and individual taste. It follows that it is also exactly on that borderline between form and function that limits and boundaries of personal and cultural kinds occur.

There are two points I want to raise in continuation of this. One is the student in relation to the essay; the other is the historical evolution of the essay. The second is a mere sketch, a mere suggestion actually, so we will start with that. We are only concerned with the English essay.

Now for very obvious reasons, I cannot trace student essays back more than three or four years. But as student essays are training grounds for professional essays, we may have a brief look at the latter. The literary-philosophical essay was the first to develop. The scientific essay grew out of it and separated from it in many real and many ostensible ways. One need go no further back than to the turn of this century to see the changes that have happened to essays on literary criticism. There was room for little whimsicalities and extraneous material of the kind acknowledged experts in literature and invited guest speakers can still permit themselves, but which students and scientists must steer out of at all costs. There were few text-references. Little tidbits of Shelley, Madame de Staël, Shakespeare, the Bible are floating everywhere; and if the reader needs any firmer reference than these authors' names the fault obviously lies in his education. Plagiarism is rampant. Apparently, no further acknowledgment of fellow essayists is needed than empathy with the viewpoint copied. Especially is this so with essayists borrowing from essays in other languages. What mattered above all was in the essay to achieve a unified personal and elegant whole, to give the reader an aesthetically satisfying experience.

This demand on essays still stands, but in the case of university essays it has become coupled with the over-riding demand to provide a discipline-specific intellectual challenge. "Listen to me" is the hidden message of scholarly and scientific essays around the turn of the century. "I dare you" is the equivalent message of university essays today.

Interestingly enough, the increasingly stringent intellectual challenge has led to and been accompanied by various other changes. We have mentioned how form imposes direction and discipline on function. We also mentioned that function gives life to form. Nowhere is that second part seen more clearly than in the need we have today to classify essays: science essays, social science essays, humanities essays, not to mention the subcategories below these classes. Some of these differences arise out of differences in the disciplines. Others are superimposed conventions. And concomitantly, the formal framework for each type has narrowed; the conventions have stiffened. There is no longer as great a personal freedom in exploring form when writing within one's discipline as there was 80 years ago. But if Perry is right, we may have to see this as the condition under which we have gained greater individual freedom in exploring content matter.

Some of the changes which have happened do indeed seem to support Perry's analysis. I shall deal with two, the relatively new conventions dominating text references, and copying, and I shall restrict the discussion to within the framework of the essay of literary criticism which is the one I know best. The very strict demands concerning footnoting of literary texts, which are a norm today but certainly were not even as late as after World War I, are an indication of increased social and educational diversity. Even among the in-group reading literary criticism, the unifying framework which guarantees common knowledge no longer exists. That is, although both writer and reader may have a literary education, they may still not share the same set of literary allusions and these therefore have to be referenced to a much greater extent than used to be the case, when the reader was simply not educated unless or until he had acquired the common set. The demand to acknowledge fellow critics may similarly be seen as an indication of greater individualization. The convention of acknowledging the views of another writer rather than flattering him by copying is essentially an act of differentiation, rather than identification. This convention implies acknowledgment of personal diversity reflecting as it does a "thou versus I" attitude as against the earlier group-identification: "we". Both changes then underscore the demand for intellectual challenge, as it invites the reader to check out the writer rather than accept his views.

As befits these moves we have also seen a change in terminology. Walter Pater, writing in the late nineteenth century, produced "Essays" and "Studies", while John George Robertson, a considerable critic of Germanic literature from the period around 1890 to his death in 1933, wrote "Essays" and "Addresses". The modern day counterparts to these members of the "literati" are, however, plainly and simply "critics", and their writings "papers" or "articles". In other words, the essay, the paper and the article are not three mutually independent kinds of writings; the latter two, which virtually apply to the same form, have developed out of the essay and they still bear unmistakable marks of that parentage. The difference, I suggest, is a corollary of the changes we have already discussed. Thus, again, footnoting and referencing are antiartistic devices which break the unity of style and thought in the name of academic/intellectual integrity, thus changing an essentially artistic literary form into a purely functional. In contrast, plagiarism - as we now call it - is an artistic device; it involves the internalization of a germinal idea and the recasting of that idea to make it in tone, style, nuances of meaning an integral part of a new whole, the overriding aim of which is to be aesthetically pleasing.

This is, in rough and sketchy outline, the historical evolution of our "papers" and "articles". However, the matter does not rest there. For like the human embryo, the schoolchild and student appears to have to pass through the phylogenesis of his profession in his own intellectual development as an academic embryo. Right up through the school years, including HSC, essay writing is largely the process of internalizing material and returning it in an aesthetically pleasing and captivating form. When the schoolchild enters university, that process is called plagiarism, subjective superficiality, failure to really come to grips with the issues; but the exercise is still called "essay writing". When the postgraduate student attempts his first "article", there is - hopefully - a quality difference between that and his last undergraduate "essay", but there is not actually a difference in kind.

With that, we are back at the beginning. The function of a university essay today is to raise an intellectual challenge, to voice an individual's doubts and suggestions. Its form is to direct and discipline that challenge. The greater individual freedom in the treatment of content is facilitated by, indeed compensated for by a concomitant subdivision, narrowing and hardening of form. Yet, how much genuine difference is there? Have we done more than pushing one set of boundaries out a bit and substituting a new set of boundaries for another? .... Actually this question is about to rupture the form of my paper by breaking out of the disciplined line my inquiry is supposed to take, so I will hurriedly leave it. But I'll nevertheless leave it in. For it serves two purposes; partly, it proves my thesis regarding the conflict between form and function, and partly, it leads me back to the students' problems of essay construction.

Much student strife with essays derives from a confusion of function and form, arising on that borderline where the two conflicting forces have to be harmonized. The students look in their reading merely at finished products, from which they deduce that the order imposed on material by authors is in fact there from the beginning as a wholly inherent quality of matter. As their essays don't come out like that, they can obviously not write. "Oh, I have it all in my head" they say, "but it won't come out on paper". "How many drafts have you written?" ask; "One", they answer. And how at university do we attempt to teach them? Not really at all. A good essay is an inherent dialogue between form and function. But despite the importance of essays to a student's career, little effort goes into teaching him that dialogue. In fact, in so far as we teach at all, we tend to separate the two elements into one bundle of content matter and one bundle of purely mechanical "skills", served out at two different counters, while the student is left alone to analyze, synthesize and reconcile his separate bundles.

Of these bundles, it is study skills that we are primarily concerned with here, and with these in their conventional form I have become thoroughly disillusioned. In fact, I believe that the only reason why these bundles help, when they do, is not because they teach the students anything new. To most of the students the skeletal information they offer is "old hat", "like being back in school again" as they say. But the information works in so far as it reassures the somwehat analytically self-confident student that if that's what "they" want here too, in general terms, then he'll just have to see if he can work out what it means specifically with regard to his particular content bundle. In this he will be assisted by the content matter itself as it imposes some of the required "skills" on the students when they start dealing with it in the prescribed manner by imitating the lecturing approach or through absorbing the largely implicit directions the tutorials offer. As I said before, the methods of inquiry required by a particular discipline have played a part in determining the form in which the inquiry is expressed. So with or without study skills bundles, the student will acquire aspects of the form as he lives himself into his discipline. The unconscious and therefore uncritical way in which this largely happens is, I believe, reflected in the way students will consider the essay requirements of their favourite department quite reasonable while judging those of others negatively as they fail to conform to that pattern. It is also reflected in university teachers' general inability to explain the process of essay writing in their own discipline in other than the tritest of phrases; identical, in fact, with those of the skills bundles. In other words, the skills become understood as the sum of experience in a particular discipline, are from then on identified with that discipline and do then, far too often, rule out understanding in terms of other disciplines.

There is, however, a large number of students who enter university at a stage in their personal development at which words still have a normative rather than a relative meaning; to whom relativism as cosmology remains merely a threatening possibility; these students would be far happier, far better able to cope, if function were fixed and form fluid; and to these students, study skills bundles of the generalized kind are of little help, may indeed on occasion do more harm than good. I shall demonstrate this claim by discussing two items, both a *sine qua non* in every self-respecting study skills bundle. They are the key-word analysis of essay questions and the instruction-words-explained list.

Let us consider the second first as it is mainly an outgrowth of the first. Look, if you will, at the following example; it is from Anderson *et al.*, but that is in itself insignificant; practically any list would have done.

> *Examine critically*: act as judge or critic, appraise.
> *Evaluate*: examine the various sides of a question and try to reach a judgment. (Anderson *et al.*, 1969, p. 50)

One may well ask what the difference between these two entries is in terms of practical approaches to essay writing. "Appraise" means "evaluate", "evaluate" means "examine critically", that phrase in turn means "act as a judge", and a judge must "examine the various sides of a question and try to reach a judgment". Circular explanations of this kind are typical of these lists and they work against their aim by giving the appearance of deep subtle differences where in fact there are none; and they make students labour at finding differences where none exist. If such lists must be produced, it would be better to deal instead with the words in grouped categories and try to emphasize the basic similarity in approach rather than insignificant sophistications in formulation. And further, take the words "evaluate" and "analyze"; it can be argued that these are not instruction words on the same level as the rest. Whatever instruction words are used, these two invariably underlie them. Even when the student is asked to "describe", he can only do so on the basis of analysis and evaluation. Describe in relation to what framework? Which elements in the *X* to be described relate to that framework? These questions have to be decided in order to select what elements go into the essay and that can only be done on the basis of analysis. Further, it must be decided which of the elements to be included are the most important, for the ordering/structuring of the essay depends on that, and that can only be done by evaluation.

When such lists are compiled it should be realized that students with a normative approach to language will take advice they are offered literally. I'll give you just one example. Late last year a student brought me an essay draft. The question read "Relate Simone de Beauvoir's life to her work". The student had looked up "relate" in a list of instruction words and decided that she could not do it, because how on earth do you relate if you are not allowed to analyze? The problem with this kind of advice is an exact equivalent to that which has become known as the hidden curriculum. The implicit messages that these lists send out constitute hidden advice, and as they are meant to stand on their own, without an instructor, any conflicts between their implicit and explicit messages remain perhaps too often undiscovered.

Furthermore, it may be worth remembering before one starts predigesting dictionaries for students in this fashion that lecturers and tutors rarely put quite as much thought into their choice of instruction words as these lists imply. And when they do make a deliberate choice, it is often directed by stylistic taste rather than by an awareness of any differences in the analytical process involved in answering. Study skills teachers tend to complain that lecturers and tutors have merely the vaguest idea of the relative complexity of varying analytical processes suggested by instruction words; why then set up apparent distinctions between instruction words which imply that each has been chosen with an analytical-evaluative nicety which accurately reflects equivalent niceties in the answering process?

Now, before we get cornered with the problem where then we think the question's meaning lies hidden, let us follow up our demolition project with an attack on the key-word analysis of essay questions, and let us take our starting point in the Simone de Beauvoir question. Continuing to follow her study skills book to the letter, the student had isolated two "key" phrases: Simone de Beauvoir's work and Simone de Beauvoir's life, and had proceeded to write part one: the story of SB's life, and part two: the story of SB's work. The two were totally unrelated. But the student had reasoned that if she was not to analyze, it must mean that counterposition equalled relation. The first response when I tell this story is for people to say that this student was not university material. And I would answer that this is putting the blame in the wrong place. Once she had been told that the two parts were mutually irrelevant, that she could not answer the question without analyzing, a name had merely been put to her own undefined unhappiness about the paper. In the two remaining days before the deadline, this student managed without help to make a B-paper out of the original mess. This in itself, I believe, should prove her "right" to be a university student. But furthermore, students are encouraged to seek study skills advice. How can anyone blame them when they do? And how can they be blamed if they trust that the advice they read must make sense, and trust it to the point where they are prepared to construct interpretations which strike them as absurd rather than doubting the advice? For if they permit themselves to question the advisers, where then will they get advice? It seems far safer to assume that the fault lies in their own twisted minds and to continue despite what is their own better judgment.

To bring out more specifically the trap in the key-word analysis approach, consider one more example. The question was set in Politics. "What impact did the Mongol overlordships have on the state tradition that had emerged in Russia by the sixteenth century?" Last year, 20 Politics I students tried analyzing that question in my study skills groups and the unanimous first suggestion was to use the key-word analysis. Proceeding accordingly, they soon established as key words all the noun phrases; "impact", "Mongol overlordships", "state tradition", "Russia" and "sixteenth century". When asked to establish a focus for the essay, they turned to their key-words and narrowed down the choice to "Mongols" and "Russia". The isolation of noun phrases without attention to their conceptual interrelations allows a mental rewriting of the question into a far simpler answering process: a chronological narrative starting with the Mongol invasion, in relation to which "impact" is seen as the story of what the Mongols did. This then leads automatically on to part two: the story of Russia not *by* the sixteenth century but *in*. Such is the associative power of the juxtaposition "Russia" and "sixteenth century". Moreover, this reading gains - again associative, not analytical - confirmation from the label "state tradition", which was readily rewritten as "patrimony". Patrimony was in fact the state tradition to emerge in Russia by the sixteenth century, and as Russia is the prototype of that form of government, the students have heard a lot about it in lectures and were thus, with their experience of school so recently behind them, mentally expecting to have to write about it.

All this means that the weight of the students' answers would have lain approximately a hundred years later than the teacher intended; yet, chances are he would not have noticed how fundamentally wrong they went. Based on past experience, I feel safe in predicting that he would have seen the discussion of the sixteenth century as an attempt to define the "state tradition" which, however, tended to include too much detail, while failing fully to account for its rise. And if you sense an echo of a typical teacher in that last sentence, then that was my intention. Neither would the teacher's benevolent interpretation have been wholly misguided, for, as mentioned, the majority of students do eventually pick up, by osmosis, what is required of them, by which time they will be doing the "right" thing as spontaneously as they now do the "wrong" thing.

How is that possible? Look again at the question. In the process of answering, the students would, by lucky coincidence, have *described* a number of influences but in language which would have given the appearance of analysis and categorization. And why? Because the reading for the topic had already been selected and predigested for them. This, for instance, is the reading list for this particular question, listed with it, so there is no chance of mistake:

T. Szamuely, *The Russian Tradition*, chs. 2-5
T. Riha, *Readings in Russian Civilization*, vol. 1, ch. 15 (George Vernadsky "The Mongol Impact on Russia").

One look at this list and you will see that no matter how much the students think they have to write about the Mongol invasion in broad terms, they will be led by their noses - and inclination to follow orders - to write about what "they" want, rather than about what they themselves think the question asks. The focus is given. And the language too. It is by stylistic contamination, so to speak, that first-year students come (the more is their luck) to give the appearance of having analyzed.

The fact remains, they have not analyzed, not categorized, not had in mind a particular theoretical framework which gave direction to their discussion; and in this lies my *key* objection to the key-word analysis. It is largely a superfluous exercise, which contributes nothing to the students' understanding of the *process* of answering. At best it gives merely an initial indication of the area in which the student is to be working; at worst, by its isolation of mere labels, it encourages a simplistic re-writing of the question which fits the student's past experience and present intellectual stage. It does not challenge the students in any way with a concept of study which could confront them with their need to develop; instead it provides the student with an escape route; furthermore it counteracts intellectual development directly by nourishing in the student a feeling of being the victim of a dichotomy at the centre of the study process, caught between what they think their instructions ask them to do, and what they later find that "they" wanted them to have done.

I suppose it is now time that we lay ourselves open to attack by committing ourselves to our own approach to students and essays. A brief analogy may help. We all know that in letters, one often has to read between the lines to get the full meaning. In essay questions, we suggest, one has to read between the key-words to get the meaning. It is, we claim, the interrelationship between key-words, not the key-words themselves, that should receive primary attention, if we are to learn anything about the process of answering from our question analysis. What matters, in other words, is how the key-words interlock, not what they are. In the Politics I question, for example, we are not meant to discuss "Mongols" or "Russians", but "changes"; and those changes will have to be formulated within a theoretical framework of types of governments and constitutions. Yet the word "changes" nowhere appears in the question. It is instead the closest I can get to a definition of the meaning arising out of the linguistic interrelationship of the elements in that question. It labels the question's *Gestalt*, if you will, and arises out of the mutual limitations and modifications placed on the noun phrases by exactly those minor words, which the key-word analysis encourages students to overlook.

In themselves, the noun phrases are merely free-floating labels; the unity of the question is carried by the structure: "What impact did . . . on the state tradition . . . in . . . by . . .?" Notice how this reduction highlights what is to be the focus of the essay by retaining the question's coherence. By reading the question this way the student learns something of the analytical process involved in studying for and writing this essay. Notice also that it has been achieved by leaving out references to the data to be analyzed, while retaining the reference, "state tradition", to a theoretical framework which will determine the treatment of the data. This is important, and it is important to draw the students' attention persistently to this, for left on their own, they will invariably see those terms as most important which carry the strongest independent, because most heavily concrete, reference. In contrast, the units we have just pulled together only carry meaning in context, by which we mean that the words "impact" and "state tradition" must be set against the students' course in Politics, which in this case lends them their specific meaning.

In general terms, then, what we attempt to demonstrate to our students is that academic-type questions always contain two elements: data and theory; and we tell them that the aim is always to bring these two into a mutually enlightening relationship. We show them how sometimes one or the other of the two elements may be implied rather than stated and we introduce them to complications as when the data to be analyzed is in itself somebody's theory, or as when the data to be analyzed is the prototype on which the theory was formulated, which can make it particularly difficult to distinguish between significant and insignificant detail in the absence of contrasting material, although it also makes it particularly difficult not to say the right things in between the rest. Instruction words, on the other hand, we teach them to look at largely as flourishes. Apart from a very few, such as "review" and "summarize" which may indicate a genuine genre difference, we tell them instruction words are there because sentences of instruction would otherwise not be grammatically complete; we also tell the students that at most these words imply a desire for a little surface style variation, and that, as a rule, they imply nothing, but may be safely ignored as long as the underlying demand to a discipline-specific analytical process is fulfilled.

All round, our experience as Study Skills teachers has served to confirm the linguistic tenor that words carry little meaning outside of context. To put it in terms of the title of this paper: meaning is at least as strong a guide to understanding language as language is to understanding meaning. Look again at the Simone de Beauvoir question. This essay might equally well have been set in a literature course as in a sociology course as happened on this occasion. The particular guide to instruction words which my student had followed explains "relate" as the act of "bringing one part into relation with another". But the process this explanation *means* would have varied greatly from a literary to a sociological context. In sociology, the meaning has to do with how we construct reality out of our individual experiences, how somewhere or other our personal background influences our theories, ideas and concepts. In literature, relating life to work would involve looking at the remodelling of autobiographical material into art, the transformation of the finite into the infinite. Sociology, which is less lofty, might have said the construction of the general out of the specific. And, as we saw in the case of my student, without any such specific reference, the word has no meaning.

I have made a number of claims in this paper which I shall now have to gather together. One is that there is an essential dichotomy between the form and function of the essay and that the successful essay depends upon the resolution of that dichotomy. The second is that the essay has undergone considerable changes and diversifications during this century, and that the individual student's ontogenetic development in essay writing still reflects the essay's phylogenetic evolution. Further, a large number of students enter university at a stage in their development where writing is still an imitative, largely unanalyzed process of learning by osmosis, a process, moreover, which they believe they have about mastered. They are therefore very ill-equipped to deal with the demands placed upon them at university, not least because the process of learning by unconscious absorption continues within the various disciplines, while the feeble attempts to provide analytical awareness of the processes involved are severed from the content which determines the process.

It has also been claimed that this situation is aggravated by the fact that a large number of students come to university with a normative attitude to language meaning, which makes them approach directions offered very much with an oracle faith in their infallibility, which causes these students to make the worst use possible of the directions given them, but which, it needs to be said, is often supported by the air of oracular certainty with which many of these directions are offered. It has also been claimed that, because of the particular relationship existing between form and function in essay writing, "how to" advice outside of context becomes so generalized as to be virtually meaningless. Our first conclusion then is that subject and study skills teachers as much as their students need to develop a relativistic attitude to language, need to learn that meaning is embedded in context, not only when we deal with subject matter, but also when we discuss processes, and that advice therefore only gains meaning when related to context. Our second conclusion is that we fail our students, in fact we will never fully support their learning efforts, as long as we keep splitting off the "how to" from the "what". These two aspects ultimately determine each other to such an extent that study skills without context are a language without meaning, a no-language, a void; while on the other hand, content without methods and skills is a bewildering shapeless and undifferentiated mass. And this is how at present a very large proportion of our first-year students experience both.

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IMPROVING STUDENTS' WRITING: A CASE STUDY

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Prior to 1980 Macquarie University's Academic Senate had received several submissions which requested that "something" be done about the (allegedly) disgracefully inadequate writing produced by some students. The generalisations about increasingly illiterate students, about the inadequacy of secondary school and/or primary school preparation of students in communication skills, about jargon and cliché-dominated prose in the social sciences, the public service, the military, and so on and on are too familiar to need recapitulation. Nevertheless, these old chestnuts were rehearsed at a number of stages before a Working Party on Writing Standards was convened. The Working Party reports to the Education Committee of Academic Senate. That Committee is responsible for "undertaking investigations referred to it by Senate and initiating such investigations as it thinks necessary to assist in securing effective teaching and learning in the University."

The Working Party deliberated first on how to attack the three-point brief set by Academic Senate:

1) to recommend the standard of English expression required for graduates of Macquarie University;
2) to determine methods of assessment of English expression;
3) to recommend methods of improving expression within the University.

Trying to deal with item 1) first seemed to be putting the cart before the horse; the Working Party bogged down in interpretations of "determine" in item 2); and finally we proceeded to item 3) with some relief.

Preliminary reading raised some questions about just how much and what kind of writing students were required to do. Each of us tended to assume that our own practice and that of our discipline was typical even though there might be a few minor exceptions across campus. A brief report from Bowling Green State University offered the following[1]:

1) Students reported having to write essay exams or course papers in only 43% of their classes.
2) 87.5% of these were returned.
3) Of the papers returned only 57% carried evaluative comments.

A questionnaire was sent to conveners of 509 undergraduate courses at Macquarie. They were asked to report on the number and length of essays set during the semester, on whether and when the essays were returned, on the nature of comments on the returned papers, on essays associated with examinations, and on their own opinions about the written work required and submitted at the University. Sixty per cent of conveners responded, some offering lengthy submissions in addition to answers to questions of fact.

Of those responding the percentages of courses setting essay-type work ranged from 100% in the Schools of Law and of History, Philosophy and Politics to 37.5% in the School of Mathematics and Physics and 28.5% in the School of Chemistry. The University percentage of courses setting essays (of those who responded) was 79.7%. In most Schools one, two, or three papers per course was typical (but four courses reported setting ten or more!). In eight of eleven Schools a length of 1200 to 2500 words was favoured over shorter or longer papers.

Responses on the nature of evaluation indicate that some practices are almost universal. These include:

1) Offering a general comment on the success of the essay
2) Offering marginal comments as well
3) Offering comments on mechanical errors and problems of expression
4) Coordinating and attempting to make consistent the standards of various markers
5) Not returning exam essays with comments
6) Not distributing exam questions in advance

About 4 out of 5 report that comments tend to be mainly on content (as opposed to expression). And approximately 5 out of 6 indicate that they do not fail students on the grounds of poor expression alone.

The report noted differences between Schools which the Working Party hoped would generate discussion about the objectives of setting certain types of work, the appropriate length of papers, and appropriate amounts of written work of an extended verbal nature. More apposite to this summary of the Working Party's activities are the general issues aired in the report's discussion section.[2]

Comments from academic staff convinced the Working Party that there was serious concern about the standard of writing being produced by at least a minority of students. The report continued:

> "Answers to questions concerning evaluation give little objective information as to the quantity of comment on students' papers but indicate that markers do return papers as soon as possible (given the pressures of other work) with comments that most consider to be extensive. While most stress matters of

> content rather than expression, many comment that poor expression and poor content are almost inseparable and that poor expression results in lowered grades if not in outright failure. Many remarked that they would like to offer more comments particularly about issues of writing skills but cannot spend the time required to do so on each paper. Increases in the number of students per teaching staff member are believed to be resulting in less penetrating and less complete commentary on students' work.
>
> A frequently expressed opinion is that too much written work is assigned. This volume often leads to competition between courses for students' attention and a spiral of more assignments being required. Some request the establishment of a University policy on the amount of written work required of students.
>
> Those surveyed often call for an admission policy that requires students to demonstrate a reasonable standard of writing skill before entrance. Others suggest a screening process in first year which would require the attainment of such a standard, possibly by passing a writing skills course, before a student advances to second year courses. A number of those surveyed feel there is not enough time to teach writing skills as well as the subject matter of their courses, and some resent the need to teach what they regard as a basic skill which should be attained before a student reaches University."

Having reviewed both the practices and the opinions of Macquarie University academics, the Working Party received a paper summarising admission policies, testing procedures and English composition teaching at universities in the United States, the United Kingdom and Australia.[3] Discussion of that paper and of the literature search that preceded it took up a number of possible approaches to improving students' writing. First, a number of academics had called for more stringent entry requirements, demanding that the University require a minimum level of achievement which could be demonstrated by Higher School Certificate English scores or some other test such as the Australian Scholastic Aptitude Test. However, there is extensive evidence of the many difficulties which arise when there is an attempt to impose an entrance requirement of a level of achievement in written expression. Leading among these are that tests of skill in English composition rarely seem to be very reliable predictors of success at university, nor do they always test skill in the particular type of writing required by various academic disciplines. (On these and related points about tests and admissions policy there is an extensive literature which I will not take time to summarise here.[4]) In short, the Working Party became convinced that it would be both unfair and impractical to try to exclude students on the basis of any available test of English expression.

A second possible approach, favoured by some with experience of American universities, was to require a course in English composition of all entrants. Again, the Working Party rapidly became aware of the many problems such a policy would create. Freshman English American-style became a monster absorbing 40% of the teaching effort in English departments, dominating departmental economics and policy.[5] In the early 1970's many departments reduced or eliminated required freshman English. According to Wilcox, the apparent reasons were that high school students were being better prepared in composition skills and that the uses and conventions of English in the many disciplines sending students to English courses were finally perceived to be too diverse to be taught in one course. Simple practicalities made any requirement similar to freshman English unthinkable at Macquarie, but more importantly, the Working Party became convinced that such a course would not necessarily solve our problems. A more attractive alternative - and one for which there is an Australian model in Murdoch's trunk courses - was the introduction of required interdisciplinary first-year courses which stress the development of communication skills both through the analysis of published materials and through extensive evaluation of students' work. But again, this was considered too big a change and too demanding on already strained resources. Furthermore, the Working Party was aware of a number of broad introductory courses already being taught in the Schools.

The Working Party decided that it was within first-year courses that attempts to identify students with writing problems should occur. Consequently, the Working Party formulated the recommendations below and they were adopted by Academic Senate.

Resolved:

1. a) that students in at least one first year course in each discipline within each School be required to submit a short written assignment;

   b) that wherever possible, this assignment be part of the existing course requirements;

   c) that whenever possible, this assignment be submitted early in first semester.

2. a) that students whose writing skills appeared in such assignments to be inadequate be advised to seek help in an appropriate course. Courses at present offered and considered appropriate for such students include:

      Writing Skills
      Academic English
      LING 253 The English Language
      PHIL 136 Informal Logic

   b) that teaching staff be provided with copies of a letter for distribution to students advising them of the different purposes of such courses.

3. that the Education Committee be asked to monitor these arrangements.

These recommendations were intended to encourage all first-year courses to set at least one essay-type assignment which would be evaluated with some emphasis on written expression, to provide a more effective screening process than mass testing, to make more obvious the University's high regard for good writing, and to remind academic staff of the existing courses which might assist students of any discipline. The Working Party reasoned that if students encountered several assignments in different courses which they were told would be assessed with the expectation of reasonable skills in the basics of written expression, they would gradually become aware that these skills are valued by many disciplines not just by English teachers. Further, if some of those students received several copies of the letter describing the two remedial courses and the two conventional courses, they might be moved to seek help in one or more of them. Finally, there was an educative role in sending to academic staff copies of the letter for distribution to students, for many staff members were either totally unaware of the existence of these courses or poorly informed about them.

Briefly the courses recommended are:

1) a non-credit remedial writing skills course organised by a staff member of the School of English and Linguistics and taught primarily by part-time tutors. This course is really a set of three short (4 or 5 week) courses: Section A takes up the planning and organisation of an essay exam question, Section B deals with the planning and organisation of a variety of written assignments, and Section C covers details of expression such as cohesion, sentence formation, punctuation and word choices.[6]

2) a non-credit course for students whose native language is not English organised by a staff member of the School of Modern Languages and taught by a part-time tutor. It offers a pre-sessional course (12 seminars) over three weeks in February and then weekly meetings throughout the year.

3) a 4-credit point linguistics course, The English Language, which has a pre-requisite of any 12 credit points, and which treats writing in the context of linguistic theory. There is a series of writing workshops in which common writing problems are discussed and the components of written language analysed.

4) a 2-credit point first year philosophy course, now titled Reasoning and Logic. This course studies the structure of arguments to see whether they really support their conclusions or only seem to.

The Working Party decided, after much discussion, not to suggest that attendance at any one of these courses be made compulsory for students identified as having problems with their writing. An issue of philosophy primarily determined this decision. The Working Party wishes students to view these courses, the people who teach them, and the people who recommend them as beneficent and interested in students' achieving their potential, not as authoritarian figures saying, "Write well, or else..." Some members of the group wanted to have a card file system so that when a marker referred a student to a course, an index card would be sent to a central location. This would have enabled us to check on how many students acted voluntarily on this advice and how often one student received more than one referral. However, other members felt very strongly that such a system smacked of Big Brother and invaded students' privacy, so the suggestion was dropped. Records show that 235 students attended Writing Skills last year, a number which has remained steady over the three years the letters have been sent to staff for distribution. A less encouraging fact is that most are enrolled in humanities and social science courses. The pre-sessional Academic English course was attended by 32 students this year; 40 regularly attend the weekly sessions. Anecdotal evidence suggests that sending to academic staff a memo reminding them of the Senate resolutions along with copies of the letter describing the courses does stimulate some discussion of student writing problems and how to assist students.

There has been a recent addition to the University's resources to aid students. Tutors in Writing Skills often review with students essays that have been submitted and assessed in other courses. They take care not to become a court of appeal against low grades, but try to comment on matters of style, organisation, and presentation which may not be fully evaluated by markers whose first concern is for content. Students frequently remark how valuable such assistance is and seek out tutors even after the Writing Skills course is over. The University is now providing a consultant to perform this function for several hours a week. Students may seek her comments on already-graded work either by appointment or during set hours.

The Working Party tried early in its history to address the first of its terms of reference - recommending a standard of English expression for graduates, but with little success. Suggestions that students who could not write satisfactorily be given conceded passes and have some notation added to their transcript, or that they be required to pass a writing course or demonstrate in some other way achievement of a satisfactory standard before being allowed to graduate began to sound exceedingly draconian. In addition, no one could suggest a reasonable and consistent way of determining who was satisfactory and who wasn't. At one stage someone imagined affixing a scarlet 'W' to the breast of writers of unsatisfactory essays, a gibe that very effectively ended a discussion of ways to ensure that we don't grant degrees to "illiterates"!

On the other hand (and more seriously), the Working Party believes it very important to address more than the severe problems of students who may be directed to remedial courses. In fact, relatively few of our students are illiterate, sub-literate, or semi-literate. Most struggle along under their heavy loads doing well enough to get by but not improving and certainly not developing the sophistication and facility we might hope for in our graduates' writing. What about them? And what about the staff members in their major disciplines? How often do they attempt to teach students the uses and conventions of writing in those disciplines? Do they point out the strengths and weaknesses in the style of books and articles set as course texts? Or do they expect students to acquire such a critical faculty by some sort of osmosis?

In time, the group came to see the effort to improve writing as requiring at least a two-pronged attack. The first set of Senate resolutions attempt to identify and assist students with severe problems and to encourage all students to take care with their written work. More recently a recommendation has been drafted for ciculation and discussion by the Schools. It is

> "that every student be required to pass at least one course above 100 level in which writing is a major component. Passing in that course would signify the student's competence as a writer as well as his/her mastery of the course content. Ideally the course would be one of those within the student's coherent program of studies. Alternatively, a course outside

> the discipline(s), eg. a General Education course, could be designated by the School as fulfilling this requirement."

This recommendation is modelled on practice at the University of Michigan, Ann Arbor, which was observed by the Working Party's present convener on her recent study leave. She reported on a number of American universities' efforts to train students in the more specialised writing required in particular disciplines.[7]

The Rationale offered in the Working Party's memo to the Schools follows:

> "The above recommendation embodies the consensus of the Working Party on Writing Standards that all Macquarie students, wherever they are enrolled, should have some training in writing. Advanced writing is best taught and practised within the student's coherent program of study and in such a way as to be integral to the character and purpose of the individual course. Within their major subjects students are best equipped and most strongly motivated to communicate. There, their writing is most likely to give them satisfaction as undergraduates, and to anticipate communicative skills which they can capitalise on as graduates. When practised within disciplines, writing is unlikely to be undervalued or treated as somehow peripheral to intellectual activity.
>
> Many Macquarie students already take, as part of their coherent programs of study, a course or courses which require a good deal of writing. This writing is undertaken in the context of examining distinguished writing on important issues in the field. The recommendation simply aims to ensure that such a course is part of every undergraduate's experience here, and would set up a network of such courses across the University. The ultimate object is to improve the standard of written expression of all students, not only those students who have difficulty in writing."

The courses which would fulfill this requirement would be identified in the University Calendar - perhaps by adding a 'W' to the course number. A special committee of Senate would review courses nominated as W courses. A set of criteria would be drawn up but the committee would be flexible in applying the criteria. Essentially the courses should demand a substantial amount of writing spread over a number of varied tasks; a reasonable part of the teaching should be devoted to the composition and editing of assignments; and evaluation in the course should emphasise the competence of the writing in relation to the set task. The committee would have a second function, one more important than granting W status: it would provide advice and support for course conveners who wished to undertake the difficult but very important task of stressing communication skills within the context of their subject teaching.

I must reiterate that this proposal is under discussion at this stage. Initial responses from the Schools give little cause for optimism about its being accepted. Negative comments include disagreement with such courses becoming part of the degree requirements, fears that already strained teaching staff will be expected to take on even heavier marking loads, and disquiet over yet another central committee interfering with academic freedom. Indeed, some of the responses have been profoundly discouraging, causing us to wonder whether we have been voices in the wilderness for these several years. One School comments that "it does not consider that teaching literacy is feasible..." Another demanded an entry requirement of "basic literacy" and that a test be administered to all students before enrolment - and so we felt that we were back where we started from.

However, as long as the proposal is being discussed, academics are thinking about many issues related to teaching writing skills. The Working Party hopes that patience and persistence will reap some benefits such as a greater awareness of and commitment to emphasising those skills within courses at an advanced level. This can be achieved by such techniques as careful planning of assignments, providing feedback on the success (or lack of it) in the presentation of ideas, and discussing texts in terms of their structure and style as well as their content.

In this sort of staff development role, the Working Party has acted more directly as well. About eighteen months ago, it suggested to Education Committee that it might be a good idea to publish an informal internal newsletter in which members of staff and students could exchange ideas and information about teaching techniques and issues. A low-key inexpensive publication called YEAST has now appeared seven times. It has hardly revolutionised teaching at Macquarie, but it has had reasonable support from a number of different teaching areas, and at least a few more scientists have exchanged ideas with a few more social scientists and humanists. The Working Party has been able to use YEAST to make discussion papers available to all academic staff in the hope that recommendations formulated by the group will have a context rather than seeming to come out of the blue - a hope not always fulfilled, as comments quoted above reveal.

Another direct result of discussions at the Working Party was the development of a workshop called "Evaluating Students' Writing". The trio[8] which worked together to plan the first version of the workshop stressed that evaluation begins with setting the task and is not complete until the students have a full understanding of what they did right as well as what they did wrong. Among the practicalities discussed were formulating questions that actually tell students what is expected of them, becoming more aware of one's own biases and expectations, varying tasks and finding tasks that are appropriate for different objectives, and different ways of providing feedback.

As a case study, this will probably never have an end. As yet there has been only passing discussion of postgraduate students' special needs for assistance with writing, but we have heard complaints about standards of thesis presentation. And we are conscious of doing too little about students for whom English is a second language. Interest in the issue of student writing will wax and wane as long as students write, if past experience is anything to judge by. The Working Party at Macquarie University has been engaged in their task for some time now and has had to practise always the art of the possible. Vast resources were not available: new courses could not be set up, specialists in teaching communication skills could not be employed to assist course conveners, counselling services could not be greatly expanded, extensive testing could not be undertaken. And yet the attempts the University is making to assist students to develop sophisticated advanced writing skills may just be the more appropriate way of achieving the goal. Good writing is not a skill which can be developed in isolation from other learning skills. What constitutes good writing depends on the context of that writing. The Working Party has come to believe that while the University has a responsibility to offer special help to the few students who are truly deficient in language skills, most students are in need of a much more integrated approach that stresses the context of the writing they must do both as students and as graduates, and that emphasises writing as an essential tool for formulating ideas as well as for communicating them. If, gradually, more and more academics come to share this view, the result can only be an improvement in the standard of written communication skills of our graduates. No one is more likely to influence the climate of opinion than those academics' peers, and they are the members of the Working Party.

NOTES

[1] Sheldon Halpern, *et al*, "Who Can Evaluate Writing?" pp. 396-7.

[2] The author can provide copies of the full report.

[3] Peggy Nightingale, YEAST No.6, pp.2-5. (Macquarie University internal publication. Available from the author.)

[4] A few items are listed in the selected bibliography below.

[5] See Thomas W. Wilcox, *The Anatomy of College English*, Chapter 6.

[6] Pam Peters, YEAST No. 4, pp. 2-3.

[7] Pam Peters, YEAST No. 6, pp. 6-12.

[8] Ms. Pam Peters, Ms. Gerry Eltis, and the author.

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TERTIARY MATHEMATICS - SOME PRESSING PROBLEMS

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Tertiary mathematics courses in Australia and overseas have traditionally been designed for a fairly homogeneous student intake, newly matriculated from the regional school system. This situation has changed dramatically during the last ten years and is still changing. As a result all the colleges of advanced education and many universities also are struggling to cater for the needs of a very diverse group of entrants. The main causes of this diversity are well-known. They are:

(i) the movement of students from state to state and country to country;
(ii) the increasing proportion of mature age students;
(iii) the diversity of school syllabi.

In Queensland we have a special additional problem - the Senior Mathematics course is fragmented into "semester units" which are taught in isolation in most schools. I believe this may be changing and that some unification of the units will emerge.

Three major methods of dealing with the problems of this diverse student body have evolved during the last few years.

1. The incorporation of more basic material in standard first year courses. Most colleges have done this to a certain extent but this option is limited because the inclusion of basic material means the exclusion of something else.
2. The provision of extra tuition on a voluntary basis for students experiencing difficulties.
3. The provision of a compulsory bridging course for students failing to reach a specified level in a screening test, successful completion of the screening test or bridging course being a pre-requisite for entry into the regular course.

Detailed descriptions of some current schemes of the three above types can be found in Atweh (1981), Calegari (1981). Gonzalez-Leon (1980), Searl (1975).

There are however two serious constraints which dominate all efforts to solve this problem. As far as institutions are concerned there is a great shortage of funds and as far as students are concerned there is a shortage of time available for remedial mathematics. Therefore on both counts it is necessary to make the remediation process as efficient as possible. This efficiency combined with a more rewarding teaching-learning environment has been our goal in the establishment of a Remedial Mathematics Facility at the Queensland Institute of Technology.

I will not deal with option three because the organization and funding at the Queensland Institute of Technology precludes a separate bridging course at this stage, although it may become an option in the future. I am also inclined to the view that making remediation compulsory engenders a feeling of resentment and inadequacy in students which is counter productive.

1. INCORPORATION OF BASIC MATERIAL IN STANDARD COURSES

In order to describe our initiatives in this direction it is necessary to explain how mathematics subjects are organized at QIT. Instead of the usual common multi-disciplinary first level mathematics subject we have separate subjects for students studying Business, Applied Science and Health Science, Engineering, Surveying, Computing, Mathematics and Built Environment. The rationale is that each subject concentrates on those aspects of mathematics that have applications in these various fields. There is, of course, some subject matter which is common to most of these courses.

In order to assist lecturers to incorporate essential basic material into courses efficiently the R.M.F. (Remedial Mathematics Facility) provides information on the percentages of students who respond correctly to each item in the screening test in each class. This information is available early in the semester, as students sit for the test during their first mathematics class, and appears in the R.M.F. Report (Hubbard, 1982). However, because of the elementary nature of the questions in our screening test and because it is not possible to obtain information on students' thought processes from a brief objective test, an error analysis of a written test has also been undertaken. A paper on this analysis is in preparation. The test chosen for the analysis was a regular class test conducted in the fifth week of semester. By this time students had received five weeks of instruction and had time to settle into their new environment. (One disadvantage of our screening test is that it is given to students in their first mathematics class - a rather unnerving experience for some.) One startling observation from the error analysis was that many students could apply the rules of differentiation only when the variable was "x", any other letter of the alphabet and they were in trouble! This kind of error can easily be corrected by a lecturer who is aware of the problem by means of suitably chosen examples. Nevertheless there is a limit to the amount of material that can be incorporated in this way without corresponding omissions being made also. Only those topics which are poorly understood by a large proportion of students can be treated in this way.

2. EXTRA TUITION FOR POORLY PREPARED STUDENTS

As mentioned by Edwards and Baskett (1981) the greatest drawback to this approach is that weaker students who are already spending long hours trying to cope with their regular courses are reluctant to devote time to remedial programmes which carry no credit. We became acutely aware of this problem in the first semester of operation of the R.M.F. both direct observation and from student responses to a questionnaire. Of 319 students who were advised to undertake remedial work 218 responded that a lack of time prevented them from doing so. Of those students who did come to the R.M.F. to collect self-paced remedial material, very few, 17 per cent returned to sit mastery tests. It was clear that some different approaches to the problem were necessary to make the remedial procedure more efficient in terms of students' time.

Firstly we assumed that Ausubel's (1963) theory of meaningful verbal learning goes a long way towards explaining how students should learn mathematics efficiently. The students who come to the R.M.F. fall into two distinct categories - those who have developed a meaningful learning set with respect to mathematics, albeit many years ago, and those who have never developed such a learning set. Neither length of time since leaving school, nor school grades, nor scores in our screening test discriminate between students who have or do not have a suitable learning set for the study of tertiary mathematics. For example, we have found students who have come straight from secondary school with average passing grades who have literally learned to "do" hundreds of mathematical procedures in isolation but who have so little understanding of the basic principles that they do not distinguish clearly between addition and multiplication. On the other hand some students who have been away from formal study for many years and who score abysmally on the screening test because they have forgotten the details of mathematics make very rapid progress once these details are provided. This phenomenon is also explained well in terms of Ausubel's theory of the subsumption of specific items in a single inclusive concept.

For the above reasons we now use the screening test to make students aware of the existence of the R.M.F. and to warn students who score poorly that their mathematics background may be inadequate. Students receive individual printouts of their test results showing their scores in sections of the test and listing the questions they answered incorrectly. If more than half the answers in any section are wrong the printout recommends a visit to the R.M.F. Most full-time students respond positively to this recommendation. On this first visit the tutor discusses with the student those questions that were answered wrongly. In the process the student usually explains something of his mathematical background and experience. This gives the tutor some insight into the student's problems and he recommends one of the following courses of action:

(i) No specific remedial work is considered necessary; errors were caused by "first week jitters". However, in case this judgement is incorrect the student is invited to return if he later experiences difficulty with his course.

(ii) The student is assessed as having a well-developed learning set for mathematics but either left school some years ago or studied a syllabus which did not include certain topics essential for his course. Such a student is given one of our self-paced modules and asked to return for further modules or further assistance if he requires it. Videotaped lessons are being prepared to supplement the written modules.

(iii) If the tutor concludes that the student's cognitive structure is insufficiently developed for meaningful learning to occur from self-paced materials alone, the student is asked to come to the R.M.F. on a regular basis for individual tuition by a particular tutor. It is then the task of this tutor to build up for the student as quickly as possible an adequate learning set.

Because the students in categories (ii) and (iii) must do remedial work concurrently with regular course work we consider it most efficient that the R.M.F. support them in both areas. The students are encouraged to bring their tutorial exercises to the R.M.F and to ask the tutors to explain points in their lecture notes. Further remedial work arises naturally in this context and is dealt with immediately or by means of the modules. This integration of remediation and tutorial assistance is a different approach to that used elsewhere. However, it places great demands on the tutors who must be thoroughly familiar with all the material taught in the various first year subjects and also with the teaching methods used. At the same time they must be constantly on the watch for errors caused by basic weaknesses or misconceptions. Fortunately the tutors (all part-time) who work in our facility are also employed as tutors in some first level courses and are encouraged to familiarize themselves with the others.

Our next initiative in this direction will be a handbook to assist tutors in this type of remedial work. In this handbook we hope to include methods which we have found effective in rapidly establishing a cognitive structure which enables a student to proceed with tertiary mathematics as well as an analysis of common errors regarded as symptoms of underlying problems.

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CONSCIOUS CONTROL OF LEARNING STRATEGIES

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INTRODUCTION

This paper addresses the question of how students achieve control over their own learning in adapting to the diverse demands made on them in the course of their university experience.

A conceptual framework is presented from which we can begin to isolate key feedback events which lead to self-modification of approaches to learning for students with different orientations to learning.

Research on adult student learning has moved forward dramatically in the past decade. The focus of this research has been on identification of distinctive approaches to learning and on the influence of context and content on these approaches. This research will be reviewed selectively here in order to provide a background for our conceptual framework.

Our aim is to attempt a synthesis between this research on individual differences in learning and a developmental model of learning. This synthesis relies on the assumptions that self-selection of key feedback events occurs in particular study cycles and that this selection is moderated by student characteristics, preferred or habitual approaches to learning, perception of the learning task and level of commitment to that task. Quality of feedback arising from chosen events enables students to reassess their approach to learning on entering the next study cycle.

Long-term modification of student characteristics is assumed to occur following successful short-term modifications of approaches to particular learning tasks.

We assume that students entering university rely on habitual or preferred approaches to learning (strategies): those which sufficed in past experiences with formal education. The complexity of university study may render these approaches inadequate. Development of learning consists of the student becoming aware of alternative approaches, incorporating these into his or her learning repertoire and their successful application according to task demands. The key to successful application lies in an accurate perception of the task demands together with a willingness to experiment with different approaches.

PROFILE OF A GRADUATE

To begin our discussion we need to develop a profile of what lecturers expect of a university graduate in terms of how this person approaches learning. Research studies do not abound in this area. In an early series of interviews Entwistle and Percy (1971, 1974) asked lecturers in various academic departments at Lancaster University what they expected from "good" students and what they thought characterised weaker students. In spite of differences between disciplines two basic qualities emerged from these interviews. A "good" student should be able to gather and evaluate evidence related to an argument and think critically (unconventionally, openly) about the subject.

There is evidence from early studies by Heath (1964, 1978) and Perry (1970) that some students do develop to a point where they can fulfil these expectations.

As a result of ongoing counselling with Princeton undergraduates, Heath reported that students who entered university with markedly different approaches to learning and personal characteristics progressed towards a similar type whom he termed "the reasonable adventurer". This individual was characterised by a combination of two attitudes: the critical and the curious. These attitudes led to different approaches to learning on different occasions. At times this individual was a skeptic and at times a believer.

Perry also used open interviews over an extended time to arrive at a description of students in humanities and the social sciences who developed towards "conceptual relativistic reasoning". These students argued not from dogmatic assertions drawn from "facts" but from commitment to an idea, being aware that commitment is an ongoing, unfolding process.

Once again using an open interview technique, Marton and Saljo (1976) asked students how they approached a specific kind of study task: reading academic articles and texts. Marton identified students who adopted a "deep" approach to learning. These students started to read with the intention of understanding the meaning of an article, questioned the author's arguments and related them to previous knowledge and personal experience. This approach was related to a high level of understanding on a specific reading task.

Yet another version of Marton and Saljo's "deep processing approach" and perhaps of Heath's "reasonable adventurer" emerges from Pask's (1976) description of the "versatile" learner whom he reports reaches understanding through the application of two distinct approaches to learning: the ability to search for overall meaning (comprehension learning) and the ability to discern rules, methods and details (operation learning).

Lastly using questionnaire data, Entwistle et al. (1979) described a version of Pask's versatile learner as one who combines two qualities: seeking understanding without attention to detailed evidence and reliance on evidence and argument.

Because of the very different methodologies and conceptual frameworks used in these studies it is possible only to assemble some clues in order to describe our hypothetical graduate as one who possesses two distinct qualities: the ability to think logically and the ability to think creatively as the situation demands. This individual's approach is characterised by versatility: the ability to move from one approach to another.

PROFILE OF A NEOPHYTE

There is abundant evidence that students enter university with approaches to learning that are very different from the ideal, though they may display some aspects of the versatile approach.

Returning to Heath (1964, 1978) we find that he described three different personality types, whom he claimed eventually converged towards "the reasonable adventurer". His description and titles are vivid.

Non-committers have a marked tendency to avoid involvement and hence not to risk themselves in order to avoid failure.

Hustlers seem to posses an inordinate need for achievement, are competitive and tend to mistrust "the inner self".

Plungers are highly individualistic and trust their inner selves, often to the point of finding communication with others difficult.

Heath's framework implies development along different paths to a similar end point but the important influences of this development or the stages through which students pass on the way are not clear.

On the other hand, Perry (1970) clearly defined a developmental progression without taking into account distinctive approaches to learning. Basically his sequence of development involves nine different stages moving from a tendency to see the world in polar terms through acceptance of diversity as legitimate, towards a relativistic view of knowledge combined with personal commitment.

Marton and Saljo (1976), Pask (1976), Entwistle et al. (1979) and Biggs (1978, 1979) have contributed to the picture of distinctive approaches to learning adopted by undergraduates. The emphasis of the research in each case is on a portrayal of individual differences in learning rather than on development of learning.

In the case of Marton and Saljo (1976) those students who adopted a "deep" approach to learning were contrasted with those who tended towards a "surface" approach: those who could list the main points in an article for instance but failed to show how these points supported the argument. These students had great difficulty in adopting a deep approach when required to do so but the reverse did not apply for deep level processors who could adopt a surface approach when required.

Marton and Saljo's polarisation of learners is complemented by Pask's account of holists (comprehension learning approach) and serialsts (operation learning approach). Pask also suggests that either of these approaches, taken to extremes can lead to pathologies of learning, familiar to us all. "Globetrotting", a pathology of holists implies that little attention is given to supportive details and "improvidence", a pathology of serialists implies a failure to build up adequate links between neighbouring areas of knowledge.

We are able to expand our picture of the learner further from the research of Biggs (1978, 1979) who was concerned with the relationship between orientation to learning (search for personal meaning, reproducing and achieving) and learning strategies (relating new information to existing knowledge, learning by rote and "playing the game").

Research by Entwistle's group at Lancaster fits very closely with Biggs' analysis (Entwistle et al. 1979).

Entwistle (1981) combined results of research from his own group with that of Biggs and Marton's group to provide a framework within which distinctive approaches to learning might be identified. Figure 1 illustrates this synthesis.

One important implication of this framework is that it reinforces the view that some approaches to learning consist of the application of a variety of approaches or strategies. To some extent this diminishes the importance of the question as to whether certain approaches (strategies) are stable characteristics of learners across tasks or whether they vary according to task demands (see, for example, Laurillard, 1979). For versatile learners and high achievers for instance we would expect variability across tasks rather than consistency.

Within this framework, comprehension learners and operation learners could be expected to display a stable approach from one task to the next but in developmental terms they could be expected to come to adopt either approach over time as they move towards a versatile approach.

The model implies no developmental progression as such, but Entwistle's (1981) model of factors influencing the learning process, shown in Figure 2, has a dynamic element which brings us closer to an account of how development of learning might occur. For the present discussion we will concern ourselves only with the top half of the model which is directed towards the learner. Moving anti-clockwise from "student characteristics" Entwistle describes a cycle of events mediated by task perception, approach to learning and leading ultimately to long-term changes in student characteristics. Precisely how feedback influences development of learning is not clear from this model but we take as our starting point Entwistle's (1981) assumption that "repeated cycles of this process introduce the idea of intellectual and personality development" (p. 116).

A CYCLICAL MODEL OF DEVELOPMENT

Our developmental model is an extension of Entwistle's (1981) model of factors affecting the learning process as it relates to the learner (see Figure 3). We assume that, for the most part, the intellectual experience and development of university students proceeds via a series of cycles. The most obvious cycle is the events of a year from enrolment through to knowledge of final results and re-enrolment. Within this cycle are shorter cycles consisting of task demands, task performance, knowledge of outcome and so on until the next task demand arises. Within this pattern the student may encounter a variety of forms of feedback, both formal (grades, written comments on assignments) and informal (discussion with lecturers, tutors or peers, reading significant material, personal reflection).

Figure 1: A model of study orientations and outcomes

Orientation and intention	Motivation (personality type)	Approach or style	Process		Outcome
			Stage I	Stage II	
Personal meaning	Intrinsic (Autonomous and syllabus-free)	Deep approach/ versatile	All four processes below used appropriately to reach understanding		Deep level of understanding
		Comprehension learning	Building overall description of content area	Reorganizing incoming information to relate to previous knowledge or experience and establishing personal meaning	Incomplete understanding attributable to globetrotting
Reproducing	Extrinsic and fear of failure (Anxious and syllabus-bound)	Operation learning	Detailed attention to evidence and steps in the argument	Relating evidence to conclusion and maintaining a critical, objective stance	Incomplete understanding attributable to improvidence
		Surface approach	Memorization	Overlearning	Surface level of understanding
Achieving high grades	Hope for success (Stable, self-confident, and ruthless)	Organized/ achievement orientated	Any combination of the six above processes considered appropriate to perceived task requirements and criteria of assessment		High grades with or without understanding

Figure 2: Model of factors influencing the learning process

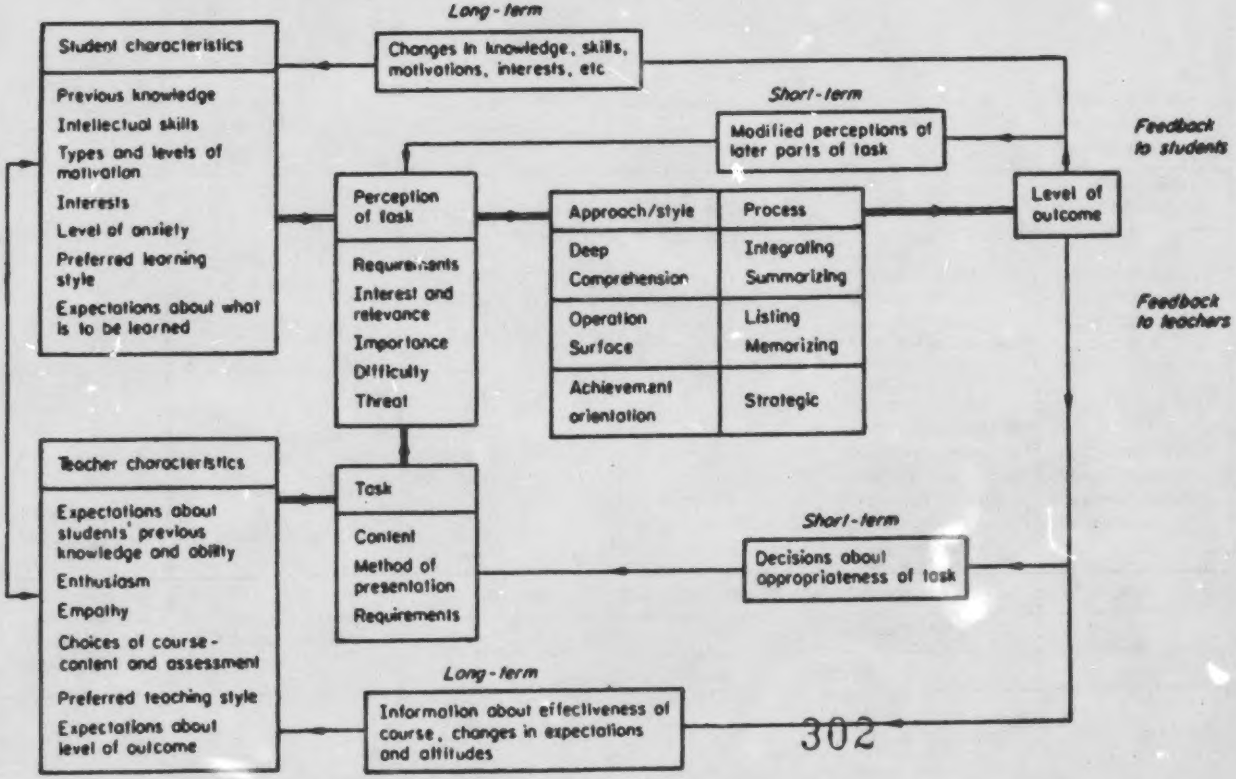
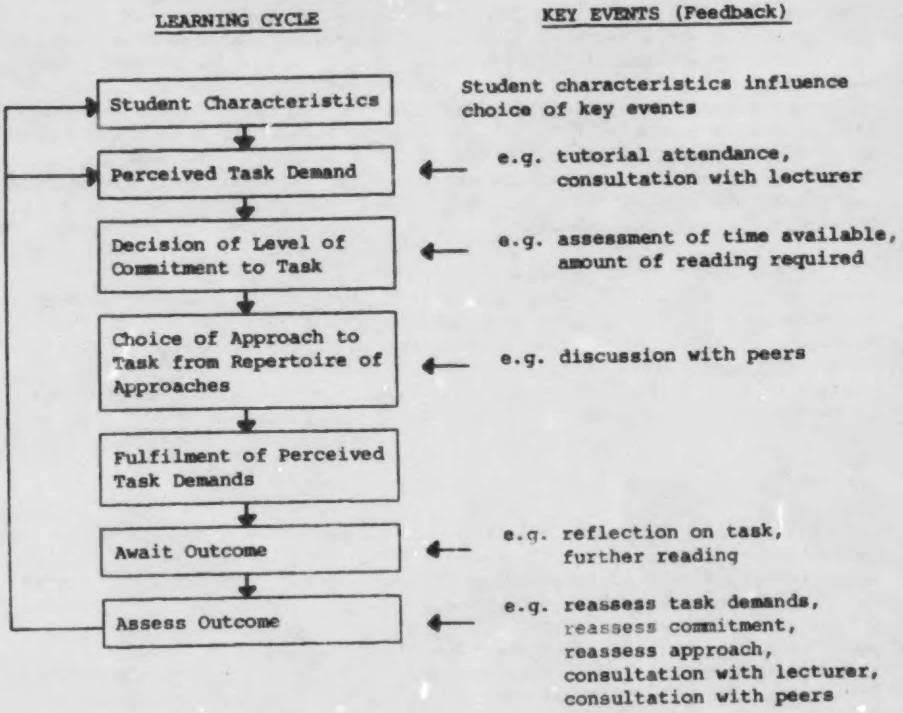

Long-term
Changes in knowledge, skills, motivations, interests, etc
Student characteristics
Previous knowledge
Intellectual skills
Types and levels of motivation
Interests
Level of anxiety
Preferred learning style
Expectations about what is to be learned
Short-term
Modified perceptions of later parts of task
Feedback to students
Perception of task
Requirements
Interest and relevance
Importance
Difficulty
Threat
Approach/style
Process
Deep
Comprehension
Integrating
Summarizing
Operation
Surface
Listing
Memorizing
Achievement orientation
Strategic
Level of outcome
Feedback to teachers
Teacher characteristics
Expectations about students' previous knowledge and ability
Enthusiasm
Empathy
Choices of course-content and assessment
Preferred teaching style
Expectations about level of outcome
Task
Content
Method of presentation
Requirements
Short-term
Decisions about appropriateness of task
Long-term
Information about effectiveness of course, changes in expectations and attitudes

Figure 3: A cyclical model of development


LEARNING CYCLE
KEY EVENTS (Feedback)
Student Characteristics
Student characteristics influence choice of key events
Perceived Task Demand
e.g. tutorial attendance, consultation with lecturer
Decision of Level of Commitment to Task
e.g. assessment of time available, amount of reading required
Choice of Approach to Task from Repertoire of Approaches
e.g. discussion with peers
Fulfilment of Perceived Task Demands
Await Outcome
e.g. reflection on task, further reading
Assess Outcome
e.g. reassess task demands, reassess commitment, reassess approach, consultation with lecturer, consultation with peers

In contrast to Entwistle's model, we assume that feedback not only follows from formal knowledge of level of outcome but may be sought informally at any stage in the cycle.

We hypothesise that student characteristics, that is the long-term, relatively stable attributes of students, will influence choice of feedback throughout the cycle.

Degree of success on a learning task, defined by level of satisfaction with the outcome may be a key influence on short-term modification of task perception and approach adopted and ultimately on long-term modification of student characteristics. We have also introduced the notion of degree of commitment into the learning cycle (see Ford 1980, 1981) since there is evidence that this is a variable which affects approach to learning. It may also affect level of satisfaction with task outcomes.

By way of example, let us take the extreme case of a neophyte who has little previous knowledge of university requirements and has always adopted a rote memorisation (surface) approach to formal learning tasks in the past. Suppose this individual applies this approach to all university tasks regardless of actual task demands. Thus "compare theory A with theory B" is perceived as "describe theory A in detail, and describe theory B in detail". Suppose also that this individual is highly committed to the task and spends a good deal of time on it. Because the task seems straightforward, though time consuming, the student does not seek discussion with peers and tutors and does not read information provided by the lecturer on essay preparation. Suppose then that the outcome of the assignment is a failure. At this stage the student might well look for feedback from various sources depending on personal characteristics. Some short-term modification may occur before the next task demand is encountered. This may involve a resolution to ask a tutor to affirm that perception of the next task is accurate with some attempt to modify approach on this subsequent occasion. Alternatively the student may repeat the same approach again, thinking that an even greater level of commitment is what is required.

If chosen feedback is effective, however, what the student is learning from a variety of sources is that there are alternative approaches to learning. This is a first step towards versatility but only a first. Knowledge of different approaches does not in itself guarantee their successful application. In order to experiment with alternatives the student must be prepared to accept the risks involved and for some groups of students this may represent a formidable challenge.

APPLICATION OF THE MODEL

What we aim to do with this model is to use it as a framework for providing learning profiles of students who differ in personal characteristics such as orientation to learning and to examine the way in which these profiles change over time. The profiles consist of an account of the key feedback events chosen by the learner at various stages in a learning cycle. Student characteristics are assumed to be relatively stable over time and across events, though subject to long-term modification. Approaches to learning may be subject to short-term modification on an experimental basis but only become part of the student's long-term repertoire of intellectual skills after repeated successful outcomes.

Our more specific research aim is to examine ways in which students who study at a distance from the university and in relative isolation from feedback events available on-campus, utilise existing feedback opportunities during the learning cycle.

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CHAPTER 9

PROFESSIONAL GROWTH THROUGH INNOVATIVE TEACHING

Application of research findings to one's own teaching and helping students study effectively are rewarding experiences; professional growth also occurs through developing and applying innovative teaching approaches. These may be derived, in fact, from research reports or from an effort to promote learning of specific cognitive or physical skills, attitudes or values. The papers in this chapter all are evidence of the satisfaction which tertiary teachers can gain through innovative teaching.

Sheehan and her co-authors demonstrate this in their description of "An innovative approach to student placements using computer facilities". By using computer facilities they are able to monitor medical students' placements and also to make the experiences of each student available to the whole group. The teachers themselves benefit by getting information from students which fuels both their research and their teaching interests.

In professional courses some skills and knowledge which are necessary for competent practice might not be taught. Death education is often such an area in medical education. Channon in her on-going study found a need for death education. She studied the overlap between various courses together with omissions from courses and discusses these in her paper "Rationalising a multi-strand agenda: death and the medical student" on the basis of student need and community needs.

Growth for tertiary teachers occurs through concentration on one's own scholarship and caring for student growth, by helping students, for example, to become autonomous learners. Norris and Cullen in their paper, "Individualized learning in tertiary education", describe rationale, process and evaluation of individualized learning modules in applied science programs at the Canberra College of Advanced Education.
The authors were aware of the particular characteristics of their student group and attempted to create optimal learning conditions for them in individualizing the program and placing the responsibility for learning on the student.

November presents in "A general model of undergraduate teaching and learning" a mathematical model that relates many variables which affect behaviour in educational institutions. Having been offered a choice of learning methods his students would choose different methods at different times. Thus he found that there was not one right learning method in one course. His model then takes account of these factors which may influence student choices as well as lecturer behaviour.

Many lecturers, like many speakers, believe in humour for creating a friendly, casual, supportive climate. Powell and Andresen in "Humour and teaching" point out that humour calls upon a set of skills which can be learnt. Humour is beneficial for gaining and maintaining interest and attention and for reducing tensions. Knowing when and how to apply it, how to make use of our own humour and others' must make teaching more satisfying and more enjoyable for teachers and taught alike.

AN INNOVATIVE APPROACH TO STUDENT PLACEMENTS USING COMPUTER FACILITIES

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The use of student placements with fellow professionals working in the community has become an accepted part of training students in professional fields. Whilst it provides a learning experience that is usually highly valued by students it is also a learning situation which may be problematic for both the student and the teacher.

In our own case which involves annual 2 week individual placements with a general practitioner for 240 students, we have identified a variety of problems. For the students, particularly in the first days or week of a placement, the experience is often diffuse and general and they may have difficulty focussing on elements of the experience. The interpersonal component of the relationship between the student and his or her community preceptor often becomes paramount and it can be difficult for students to extricate themselves from their personal response to the teacher in order to effectively evaluate and understand the actual practice they are observing. While this problem is most obvious where there is some conflict between the student and the preceptor, the no less common 'hero worship' relationship also limits students' observations of what their particular discipline in practice on the ground is all about.

From the teacher's point of view there is always the problem of quality control of preceptors. People who are prepared to have students work, and in many of our cases, live with them at their expense, are rare and highly valued. They are not always open to the suggestion that university teachers should sit in with them and monitor their professional competence. Student reports of preceptors' practice can be unreliable and impressionistic but are frequently the only data that teaching staff can use to assess quality of practice. A further problem may arise from the situation in which a student has an unsatisfactory placement. Because the placement provides their only exposure to the discipline in action, such students may feel unsure and disturbed by their career choice. On the other hand, the uniqueness of most placements and the great variety of experience they provide in the field, are important features of student placements which are rarely systematically explored by the departments running such courses.

TABLE 1: STUDENT LOG BOOK ENTRY

PRESENTING SYMPTOM/S OR STATED REASON FOR CONSULTATION	INVESTIGATIONS (PATHOLOGY TESTS, X-RAYS, ETC.)	SIGNIFICANT FAMILY, PSYCHOLOGICAL OR SOCIAL FACTORS	DIAGNOSIS OR DEFINITION OF PROBLEMS	MANAGEMENT, INCLUDING DRUGS PRESCRIBED (IF APPLICABLE)
Sore ears. Ringing in ears, especially when nose blocked.	PAP smear. (R)	-	Eustachian tube block.	Sudafed. Avil Retard. Advised to take care in aeroplanes, or diving deep. Referral to ENT specialist if problems persist.
Has been feverish. The cut has been discharging since stitches removed.	Pathology for drug sensitivity of organism. (R)	-	Probable Staph. aureus wound infection.	Start doxacillin (Orbenin) immediately. Stop amoxycillin. Continue dressing.

In the following discussion, a method of monitoring student placements which goes some of the way towards resolving these problems, is described. The method which uses computer facilities, has given us an evaluative tool which helps to make the unique experience of each placement available to all the students and which, in turn, feeds back in to our own research and teaching interests.

During the first stage, prior to placement, students are given a log book and advised how to use it to describe their observations of practitioner-patient contacts. In the log book, they are required to write specified information about 75 consecutive patient contacts. An illustrated example of two entries in a log book is provided in Table 1. Individual patient contacts represent a relatively simple form of recording for students working in the health professions but other units, such as hours of work, could be readily accommodated to this approach.

Students are then given a coding frame to transcribe their log book information into data for the computer. They are instructed how to use the codes and any potential problem areas are explained. A sample from our code book is given in Table 2. From a teacher's point of view, the construction of the code book is probably the most demanding and useful aspect of the programme. The level of sophistication in coding that students can be asked to achieve is limited and decisions need to be made as to what are the core aspects of a practice or of patient management which indicate the type of practice in which a student is placed. In addition, there is a practical limit to the amount of coding that a student will cheerfully undertake. We have found that 3 hours is an acceptable task; other students in different disciplines might be more or less amenable.

TABLE 2

STUDENT LOG BOOK SUMMARY CODE BOOK

Column			Code
1	Term number.		1-8
2-3	Student number (as given on coding sheets)		As given
4-5	Patient number (recorded as reported, i.e. if patient number repeated because of a repeat visit, record original (same) number.		01-75
6	Sex of patient.	Male	1
		Female	2
7-8	Adults and children over 1 year but less than 80 years record their age as given (i.e. record 15 if fifteen years, etc.)		As given
	The exceptions are:		
	Adults 80 years and over.		80
	Babies and infants up to 6 months.		81
	More than 6 months but less than 1 year.		82
	Don't know or not recorded.		88

The information areas covered in the student coding are given in Table 3. These require 23 columns and we allow for some flexibility so that at times we may add a further variable/s which may be of particular interest at the time: for example the use of tranquillizers. As far as a medical placement is concerned, the biggest headache for coding lies in the major diagnoses. The coding we use is the International Classification of Health Problems in Primary Care which includes over 350 possible condition codes. Even these are insufficient to cover the extraordinary variety of illnesses and conditions that present in general practice. Some of the codes are also rather vague so that obsessive students can suffer agonies of indecision over which coding number to use and they need advice about this, prior to their placements.

TABLE 3

CHARACTERISTICS CODED FOR PLACEMENT SUMMARY

PATIENT CHARACTERISTICS:	Age, sex.
CONSULTATION:	Place, type, initial or repeat.
MANAGEMENT:	Investigations, diagnoses, drugs prescribed.
	Decision re follow-up or referral.

At the end of the student's placement, the completed coding sheets are returned and the data punched into the computer. Frequencies for each variable for each student are obtained and printouts which include the data for each student are distributed at what we describe as the "wash-up" session.

At this final discussion session, each student receives a printout which contains his or her own practice data; the same data for every other student in the term and the cumulative total of all students on each variable. It should be noted that with class sizes of 28 and patient contacts of 75 per student, the total number of patient contacts recorded is about 2,100.

It is in this final session that the usefulness of the technique emerges. Students have before them, their own practice data and the practice data for each other student in the class. Practices are identified geographically to all present and particular ones which may be readily expected to be unusual or of particular interest to all students are identified early. Examples of such practices are the Royal Flying Doctor Service, Aboriginal Health Centres, practices with predominantly elderly patients, etc.

Each variable is considered in detail by the class and relevant related material from research on Australian general practice is presented to the students and discussed in comparison with their own experiences. At a practical level students may be asked why their own individual variations in figures occur. Possible hypotheses are noted and followed through the rest of the printout. For example, it is possible to ask students to look at the sex ratio of the patients who attended their placement practice. They can then be asked to consider their own findings and to compare these with the figure from other student placements and other statistics. In the early sixties the male:female ratio of attendance at general practitioners basically reflected population figures of around 50:50. During the two decades to the eighties, the proportions have changed to increasingly represent women (Bridges-Webb). Our Queensland figures based on 34,000 student recordings of patient contacts in 1981 found a ratio of 42:58. With this background it is possible to raise a number of questions with the students: "Why has there been such a marked change?" "Is the increased female representation due to contraceptive pill consultations?" "Are there increased consultations for psychological problems and are females more likely to be affected?" "Were the students with very high proportions of female patients in their samples placed with female doctors?" All these and other possibilities can be pursued tentatively through the data the students have coded.

Overall, we have found that this method, which would not be possible without computer facilities, forms the basis for a productive and highly involving teaching session. It enables students to talk about their practice placements from a data base rather than impressions and provides them with some data with which to write up the inevitable practice experience assignment.

Over and above its effectiveness as a stimulating teaching device, we feel that it helps combat the 'myth' of a typical general practice and practitioner and helps to show students the great variety of practice that exists. It also helps students to look at the broader social factors which determine patient and practitioner individuality. Furthermore, it gives students skills which they could use to evaluate their own practice in the future by introducing them to basic data processing and computing skills and a research orientation. Finally, it provides teachers with an insight into their preceptors' styles of practice.

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RATIONALISING A MULTI-STRAND AGENDA: DEATH AND THE MEDICAL STUDENT

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INTRODUCTION

Many content areas in tertiary courses receive relatively little formal acknowledgement in the curriculum. This is especially the case in vocational courses such as law and medicine, where content areas which may well represent skills and knowledge essential to competent professional practice may be taught by a wide range of departments, members of which have relatively little interaction one with another. Some subject areas may be almost entirely over-looked in many schools. Examples of this include the practical issues of practice management in medicine or interpersonal aspects of the lawyer-client relationship in law. Other areas may be covered during the course but with little co-ordination of teaching.

This paper explores some ways in which student needs and teaching practice in such areas can be assessed, using an ongoing study of death education in the Medical School of the University of Sydney to exemplify the process.

WHY MAKE TEACHING EXPLICIT?

A major improvement in the efficiency of teaching can be made by identifying areas of duplication and of omission in the course. In the case of duplication, the departments concerned may consider several issues. Firstly, the extent to which the duplication is actually real may be assessed. A broad lecture title may indicate rather different specific content areas for different teachers so that duplication does not in fact exist. Even if the duplication is actual, it may be that repeated reinforcement of certain concepts during the course is a desirable feature. If duplication is not considered a positive feature, attention may be given to the questions of when in the course the material is best taught and by whom.

Communication between different teachers of similar areas may result in an agreed and consistent policy about what should actually be taught. It is not difficult to imagine a situation where, for instance, one lecturer in medicine might advocate that in the case of a terminal illness a close relative of the patient ought always to be informed first about the prognosis while another lecturer might advance as a matter of principle the idea that the patient ought always to be the person first informed.

METHODOLOGY

A first essential is to evaluate baseline knowledge, skills and attitudes in order to make the level of teaching appropriate. Students bring knowledge and experience with them from earlier teaching and from everyday life. As an example of the unsystematic operation of such a principle, tutors in the Department of Behavioural Sciences in Medicine noticed and discussed informally the fact that the level of knowledge about sexuality appeared to be increasing over the period 1974 - 1977. In consequence the level of sophistication of the department's teaching in this area was increased, with a positive effect on student evaluation of that particular input.

Secondly, it is important to assess the current teaching practice to identify areas of duplication or omission with a view to suggesting remedy of omissions and making departments aware of duplications.

A third factor in this exercise is to assess the perceived needs of students before, during and after the course. Rather than focussing, as does much teaching evaluation, on assessing the course input as given it may well be more useful to investigate what students would consider an ideal input to be.

A final area of considerable importance is to assess the extent of change during the course in order to evaluate the extent to which current teaching is being effective in promoting the desired changes in behaviour.

The current study of death education in the medical school is carrying out these tasks.

WHY STUDY DEATH?

Medical practitioners encounter dying patients as a part of their professional lives and as such, they ought to be able to bring professional competence to the area. Currently there is much evidence that they do not always do so. Research has repeatedly indicated an imbalance between medical practitioners' policies in regard to telling patients that their illness is likely to be terminal and patients' wishes to be informed (Fitts and Radvin, 1953; Aitken-Swan and Easson, 1959; Oken, 1961; Crammond, 1970; Wright, 1978; Lamerton, 1980). A British study aiming to compare terminally ill patients who were aware of their prognosis with those who were not had difficulty in allocating patients to the appropriate groups because the patients' general practitioners were uncertain of their state of knowledge (Todd and Still, 1982). Even the Lancet, produced by the British Medical Association, speaks of a "certain incompetence in terminal care" (Lancet, 1978).

For many years, death has been a socially taboo subject, and only recently have authors such as Kubler-Ross (1970, 1974) popularised to some extent issues relating to death and dying. In medical education then, death education takes place against a social background of coping-by-denial. As well as this general denial, the medical practitioner is in a special position vis à vis death. His entire training stresses cure as the goal of medicine and hence death is to be regarded as to some extent at least as professional failure. Illich (1975) speaks of death in the medical context as "the ultimate in consumer resistance". We might then expect medical practitioners to feel even more threatened by issues concerning the terminally ill than the general population and even more likely to employ coping mechanisms involving distancing themselves from these issues.

For these reasons, the status of death education in the medical curriculum warrants serious study.

BASELINE EXPERIENCE OF DEATH

To assess baseline experience with death, the two preclinical years of students were surveyed early in the academic year. This survey, reported in full in Channon (in press) reinforced the notion that late adolescents in Australian society have had very limited contact with death. While most had experienced the death of a friend or relative, in the majority of cases it was the death of a grandparent. Death at one generation's remove was next most common and death in the respondent's own generation relatively rare. Asked if they had ever seen a dead person, second year students were significantly more likely to report that they had, with the largest category of respondents being in the medical education context, usually voluntary anatomy dissections or morgue tours. Very few students had been present when a person died.

This tendency in our society to keep death and dying out of awareness was underlined by answers to questions regarding the death of animals: even here there was evidence that many respondents who had had a pet die had not seen the animal after its death.

While the tendency to cope with death and dying by means of denial may even have a biological value for most members of society (e.g. Hinton, 1972) it is important that a medical practitioner be able to communicate with his terminally-ill patients in an open, calm and supportive manner. For these students whose life situation has involved relatively few encounters with death and dying, the medical curriculum needs to provide information about death, dying and bereavement, opportunities for open and frank discussion of death with an awareness of the need for anxiety reduction in this area (Warren, 1982) and appropriate, supervised practical experiences with dying and bereaved patients.

ATTITUDES TO DOCTOR PATIENT COMMUNICATION IN TERMINAL ILLNESS

A further section of the survey investigated students' attitudes to informing terminally-ill patients of the prognosis. Asked whether they would wish the prognosis to be communicated to a parent, themselves and a member of the general public in the case of a terminal illness, a large majority were in favour of truth-telling in all cases (Channon and Ballinger, submitted for publication). For many of the analyses, a significant difference between years one and two was found, with second year students in all cases favouring more open communication.

If one makes the assumption (not necessarily true) that the future professional practice of these students will reflect their current attitudes, the implication for the medical curriculum is apparent at once. Teaching needs to focus not so much on whether to tell as how to tell (Vaisrub, 1976). Medical students prefer prescriptive answers, but in this area the need to avoid a single model of truth-telling and to adjust one's practice to suit the needs of the individual patient must be underscored (Cope, 1968). Issues relating to the change in the doctor-patient relationship once the patient is beyond the more usual medical situation of cure-seeking need to be made explicit and explored fully (Todd and Still, 1982).

THE PRESENT CURRICULUM

All the departments and sub-departments making up the Faculty of Medicine were surveyed in April 1983 regarding their current practice in terms of death education. The survey revealed three problem areas: duplications; omissions; non-documentation with variation in input.

The major areas of overlap in formally-documented teaching concerned stages of dying (mainly based on the 1974 Kubler-Ross model) and communication of the prognosis, both of which were covered at the pre-clinical stage by Behavioural Sciences in Medicine and in the clinical years by Community Medicine in Year IV and General Medicine in Year V. Community and General Medicine also overlapped with Surgery (Year V) in teaching care of the dying. Bereavement was addressed preclinically by Behavioural Sciences in Medicine and In Year IV by Psychiatry.

Omissions are, of course, less easy to identify. The major problem seemed to be an absence of any formal input specifically addressing the subject of death and the child. Behavioural Sciences in Medicine had presented a formal lecture in the past but had discontinued it because of the feeling that a preclinical time slot was not the best place for such teaching and an assumption that the issue would be taken up in the clinical years. Paediatrics in Year IV had also discontinued their formal lecture input on this subject because of poor attendances. The area of death in children and bereavement counselling for parents would seem to be of particular importance. Firstly, parents very rarely have the expectation that a child will predecease them and so they are particularly vulnerable to extreme grief reactions. The death of a child is intrinsically poignant, with its ending of hopes and plans for the future. Thirdly this is an area where for the child himself "ordinary forms of reassurance and counseling, medications and other traditional therapies have failed" (Gardner and Olness, 1981) suggesting that there is a need for creative approaches to management.

A major difficulty uncovered by this particular survey was the variation in input regarding dying patients resulting from the tutorial system of medical education. Much paraclinical and clinical teaching takes place in the situation where small groups of students are instructed in the diagnosis and management of hospital patients. Relatively few beds in teaching hospitals are occupied by dying patients (Cartwright, Hockey and Anderson, 1973) and hence opportunities for work with terminally ill patients are relatively restricted. The choice of which patients are seen varies with the tutor's interests and the patients he has available and while some may be concerned with the need for death education others may not.

PERCEIVED NEEDS OF STUDENTS

This section is necessarily more speculative in that it is based on interview data supplied by a handful of self-selected clinical students. The aim of the interviews was to establish the areas that might usefully be investigated in a survey of clinical students and the most fruitful timing of such a survey.

Two major criticisms were noted. Firstly, students were aware of the problem outlined above, that there is a wide variation in the input they receive depending on the interests of their tutor, his speciality and the patients available to him. Although they have several changes of tutor during the clinical years, they felt that it was still possible to reach the end of the course with little attention having been given to death education.

A more fundamental criticism concerned the fact that in general contact with dying patients was on a one-off basis. The self-selected and presumably concerned students who chose to talk with me felt that their learning would best take place in the context of a longer personal involvement with patients. Many teaching hospitals have mainly short-stay patients and similarly medical students are to some extent birds of passage. Nevertheless, the feeling was commonly expressed that in such an area where counselling skills are of the utmost importance and where a developing process is occuring there was a need to follow patients through their "dying trajectory" as Strauss and Glaser (1975) call it.in the context of a personal relationship. If this were to occur, students would have experience of the changed role of the medical practitioner when the patient is beyond cure.

CONCLUSION

Death education in the medical school exemplifies an area which receives little formal curricular recognition and yet may be an important ingredient in professional competence. Assessing baseline knowledge, current practice and student needs forms a basis for possible communication and co-operation between departments as a pre-requisite for curriculum reform.

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INDIVIDUALIZED LEARNING IN TERTIARY EDUCATION

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INTRODUCTION

The Natural Resources programme run in the School of Applied Science at the Canberra College of Advanced Education has a different student population from most other tertiary institutions; 50.2% of the College's students are part-time and most of them are mature age. The majority of these are employed in the Commonwealth Public Service.

These mature students are generally an exciting group to teach and many of them work in areas related to their studies, which enhances class discussion. They are generally highly motivated, well informed and well organized. A problem they may have is that their jobs often take them out of Canberra so that they are unable to attend some classes.

There are other reasons why alternative teaching strategies were looked at. First was the observation that comes to most tertiary teachers early in their careers that the major learning benefits from any lecture often acrue to the lecturer preparing the material rather than to the students who passively record various impressions of the session. This implies that we should be more concerned with the outputs of the learning experiences we provide rather than the inputs.

The second concern was to ensure that our students developed an appropriate orientation to their study. Ramsden (1982) outlined four common study orientations, their predisposing motivations and consequential study methods (Table 1).

More than just being aware of the study orientations adopted by each student, there is a need to talk with students and encourage them to develop a 'meaning' orientated approach to study. Using Perry's (1970) cognitive development scheme the students' approach to learning needs to be shifted from that of dualism, where most questions have a right or wrong answer, to that of relativism, where commitments are made and responsibilities accepted.

The third concern relates to the need for students of applied science to develop appropriate attitudes towards science. All scientists need to be taught to scrutinize experimental methods to ensure that what is claimed to be measured is in fact measured. Also they need to ensure that the conclusions drawn by an author are supported by the reported data. In applied science it is also necessary to be aware of the strengths and weaknesses of professional judgements in problem solving and to be able to differentiate such judgements from data-based conclusions.

Table 1

Study orientations, from Ramsden (1982)

Study orientation	Predominant motivation	Learning processes
Meaning	Intrinsic - interest in what is being learnt	Active attempts to incorporate new ideas with existing knowledge, personal experience
Reproducing	Extrinsic - concern for qualifications or fear of failure	Narrow concentration on learning details by rote and following syllabus closely
Strategic	Need for achievement and affiliation with staff	Structuring and organizing work, using either rote or meaningful learning as required to earn high grades
Non-academic	Need for affiliation with peers	Little concern with academic requirements; tendency to be disorganized and to jump to unsubstantiated conclusions when academic demands are pressed

BOUNDARY CONDITIONS FOR AN INDIVIDUALIZED LEARNING STRATEGY

Individual learning as described by Weisgerber (1971) and others was thought to be an appropriate approach to meet the requirements already discussed above.

Individual learning clearly would help the scheduling problems faced by part-time students. It was also considered that it would help encourage students to adopt an active and challenging learning approach rather than accepting the lecturer's word for everything.

At the planning stage it was apparent that there were four major difficulties to be overcome if this approach was to lead to a better learning environment for our students.

(a) Course content

Staff were concerned to allow students more say in the content of the course. In the normal lecture based course by the time students make their wishes known it is often difficult to rearrange staffing or teaching facilities to accommodate such wishes.

Staff were also aware that they were employed because of their professional expertise, and that students and their employers expected a professionally designed programme that would provide an appropriate foundation for high quality professional work in the subject areas after they graduated.

(b) Student interaction

Given the generally well-informed and interactive group of students especially in the Natural Resources graduate programmes, it was desirable to retain some elements of this student interaction in the teaching situations we designed.

(c) Assessment

Another concern was to ensure that assessment of students was equitable in a situation where individuals would be learning different things, and topics would be studied with varying breadths and depths.

It was also apparent that if the approach was to be successful in developing autonomous learners (Boud, 1981), then the student's capacity for self assessment should be developed.

(d) Workloads

Workloads in a College of Advanced Education seem generally to be high for both students and staff. It was important that such loads not be increased for either group. It was also important to ensure that staff were credited with the teaching time involved with any individualized programme.

THE INDIVIDUALIZED LEARNING APPROACH ADOPTED

It was decided to develop the individualized learning approach with graduate courses initially, since these were lecture-tutorial courses with only minor practical laboratory components.

The units had formerly been scheduled for two two-hour sessions each week. In the individualized format one of these sessions was retained each week for the group to meet and interact. The emphasis in these classes was changed from transmitting knowledge to applying knowledge to a problem situation. They became workshops where students applied and extended the material learnt in the individualized part of the course. The workshop sessions were also an opportunity to introduce visiting lecturers to the groups, in order to ensure they saw a range of philosophical approaches to the subject under discussion.

The individualized component of the work was presented as a series of modules. Each module consisted of a learning guide with main references and supplementary references. Since part-time students often have trouble getting to the library, in most cases the four to six main references were loaned to the students with each module. The study guide also included a series of questions which did not require formal answers. The questions were included to help the student identify important points that they were expected to get from the reading. A typical study guide is included as Appendix A.

When students decided they had done sufficient work on a module they would make an appointment to see the appropriate lecturer for a one to one tutorial session. These sessions generally lasted about 20 minutes although some were as short as 2 minutes and some went over an hour. The very short session came about when it was apparent that the student had not done the work and the individual was told to come back when better prepared. Students only had to be sent away once or twice and subsequently all prepared adequately for the tutorials. The long tutorials generally occurred when both the student and the staff member forgot that they were in a teaching situation and were involved in an exciting professional discussion on some problem of interest. Students who failed these courses did so by not completing the required work within the semester rather than by failing some of the modules.

The most common format for these tutorials was to present the student with two or three problems not discussed within the readings but to which the principles within the readings could be applied. The student was then asked if there were any problems they encountered with the reading that they would like to be clarified.

To minimize stress on students and staff it was decided to reduce the emphasis on assessment in the modules. Students who felt uncomfortable in the oral assessment had the option of submitting a short essay on each module. Students who felt their final grade after module assessment did not reflect their true performance could sit a final written examination and have their highest result recorded as their final grade.

Within the module discussion the criteria for grades was clearly explained.

Grading standards

PASS	To achieve a PASS in this unit, students will be expected to be familiar with the main concepts of the four modules and with the material covered in lectures and set readings.
CREDIT	A CREDIT will require a thorough grasp of the material presented and evidence of wider reading.

DISTINCTION	A DISTINCTION requires performance as for CREDIT but with evidence of wider reading and of the ability to analyse a problem and use information from a variety of sources to propose solutions.
HIGH DISTINCTION	As for DISTINCTION, but with the evidence of both greater analytical ability and the ability to both synthesise and evaluate a range of possible solutions.

Towards the end of the module discussion students would either be told their grade or be asked to nominate the grade they felt they deserved. Further discussion would then result which either analysed the student's responses to the questions discussed, or provided further questions. A result was then agreed between the student and the lecturer. Students who did not perform to an acceptable standard were sent away to do further reading rather than being failed.

This assessment approach, with explicit criteria and with a variety of safety nets reduced the tension normally associated with assessment, and helped ensure that tutorial sessions with staff were an enjoyable and helpful learning experience rather than a dreaded hurdle that had to be negotiated.

STAFF REACTIONS TO THE APPROACH

The one to one teaching situation had four major advantages over the more common group tutorial. Students were encouraged to operate at the 'meaning' level in Ramsden's (1982) typology (Table 1), and hence become active learners. This individualized format allowed students to get instant feedback in which misunderstandings were corrected, not just marked down. The third advantage was to develop the student's responsibility for learning and in particular for deciding when they knew enough about a particular topic to come for the discussion with staff members. This decision is a fundamental one for any applied scientist in day to day work, so it was a great advantage to discuss it explicitly with students and have them develop this skill.

The fourth advantage was that although lecturers controlled the core content of the module by the set readings, students had sufficient freedom to develop their interests in a variety of directions. Some later modules were in fact unstructured and the student had to select a topic and some core readings in consultation with the lecturer.

This individualized approach has been developed by the Natural Resources group in the School of Applied Science in graduate and undergraduate units over the last four years. A number of variations have been developed, including using modules for half the semester and conventional practical classes for the other half. Some tutorials have also been held with groups of 2 or 3 students.

STUDENT REACTIONS

In general students have been very positive about this individualized approach to learning. In order to better survey the student reaction a questionaire was developed and was administered to both graduate and undergraduate students who had completed study of the individualized units.

A total of 27 responses to a questionaire were received; 16 from undergraduates and 11 from graduate students. The students were asked to comment on aspects of the unit which they felt most strongly about and these responses are shown in Table 2.

Table 2

Students' reaction to some aspects of the 'module' teaching/learning approach

	Reaction		
	Positive	Negative	None
Independent study of set modules	20	3	5
Freedom to plan own work programme	11	3	14
Individual or small group tutorials	7	0	21
Assessment and feedback	13	0	14
Access to staff	8	1	14
Access to readings	4	3	19
Group interaction	4	9	14

The students were also asked to react to specific aspects of the module study programme and these responses are shown in Table 3.

The students readily accepted the module approach and they felt strongly that the independent study of set modules was valuable (Table 2). Several students made comments such as;

> "I find I learn more through reading and disscussion than through writing essays and exams."

With the more usual lecture course and exam format, students make notes and record something less than the lecturer provides them with. Very few students seem to do very much in the way of constructive extra reading. When the exam time approaches learning is done from lecture notes where something less than they contain is learnt. The exam is written, and except for a pass or fail on a record sheet no feedback is provided.

Thus there is a continual loss of information along the chain from lecture to exam and more importantly little opportunity or reward for the development of ideas, arguments or further reading and learning. The module system breaks this chain and immediately rewards extra reading and the development of ideas and arguments. Autonomous learning is promoted with the lecture course and the modules providing the core or basic curriculum for the course.

The students also felt that the number and the nature of the modules allowed some depth of understanding without being too structured or restrictive in content (Table 3).

Table 3

Students' responses to specific aspects of the 'module' teaching approach.

	response		
	positive	negative	none
Too many modules to allow any real depth	2	23	2
Excessive workload	3	21	1
Module structure unduly structured or restrictive in content	1	22	4
Assessment of modules whilst immediate was unfair	5	18	6
Modules could be handled by a group of 2 - 3	8	11	8
The idea was good but the modules need to be better designed	7	13	6
Individual or small group tutorials were not very useful	3	19	5
The individual or small group tutorials were not threatening	16	6	5
* More is learnt with written exams than with module and tutorial assessment	1	14	1
* Short essays (1,000 words) on each module would be more useful than tutorial assessment	1	14	1

* Question only asked of undergraduates, total 16

Therefore a curriculum had still been provided but with enough freedom to promote autonomous learning.

There was a strong feeling that the tutorial discussions and assessments were very useful and not threatening (Table 3). Postgraduates and undergraduates alike commented that;

> " . . . (the tutorials) were usually very important in claryifying issues and understanding them." and;

> " Module assessment clearly shows up the weak areas in one's learning and reading."

The tutorials provided a forum where the students could explore areas of reading and learning with the staff and obtain instant feedback. In this situation most agreed that learning was enhanced. A minority of students saw the tutorials as threatening (Table 3), but some could still see their value, e.g.;

> "Tutorials, although traumatic, made you think and you learnt more."

Most students thought that only the first tutorial was threatening and therefore developed the self confidence which enhanced the learning situation in the tutorials.

There was a mixed feeling about whether the tutorials should be held individually or as a small group (Table 3). Some students felt that;

> "Individual tutorials put the interviewee 'on the spot' and did not facilitate constructive interaction (as in a group situation)."

Other students felt restricted in a group;

> "I find it hard to compete with other students, I don't like to answer questions at their expense."

There are arguments in favour of both approaches, however, in the authors' experience students were generally more forthcoming in one to one tutorials. Group tutorials did not seem to promote interaction but developed competition or nervousness especially if an individual perceived themselves as performing poorly in front of their peers. Potts (1981) has also developed a form of one to one learning and as he points out there will always be difficulties in introducing autonomy to people who do not want it, students and staff alike.

There were two stages to the development of a student's ability for self assessment. Initially it was up to the student to decide when enough learning of the module topic had been done to achieve the desired grade. Secondly the students were asked for their own assessment and whether or not the given grade was fair.

Table 2 indicates that students either had positive feelings about their assessment, or that they just accepted what was given out by the staff. A more varied range of feelings is indicated in Table 3 where some indicated negative views. The problem is to move away from the generally perceived and accepted unilateral , 'we versus they' control over assessment as discussed by Heron (1981). This did develop some conflict among the students, for example;

> "I feel that to some extent personalities were being assessed, assertive (extrovert) = higher grade."

This is especially so where a more aggressively natured student may be more inclined to argue or bargain about their grade.

The undergraduate students were asked whether more was learnt with written exams or whether short essays would be more useful than the tutorial assessment. The students were strongly against the first two alternatives (Table 3).

Many students developed a much better understanding of their level of knowledge and this is reflected in their feeling of how well they learnt in the tutorials as already discussed.

Just under half of the students (about the number of part timers) thought that it was important to be able to plan their own work programme (Table 2). Being able to fit the course work requirements in with other commitments is important but one undergraduate made the following comment;

> "Freedom in work programme planning removes much of the pressure imposed by due dates and makes you feel that you might actually be achieving something for yourself rather than just churning something out to satisfy the unit requirements."

Thus freedom to plan a work programme may have the advantages of coordinating commitments and generating autonomy. Reading and learning is done more with self motivation than with the threat of failure if due dates are not met.

CONCLUSIONS

A learning environment based on an individualized approach has been created for graduate and undergraduate students in a tertiary applied science programme. The approach is individualized with respect to time, and partially individualized with respect to content.

Staff and students have found the approach exciting and effective in developing autonomous learning. The responsibility for learning, and deciding when enough has been learnt is placed on the student rather than the teacher. The teacher's role is to provide an introduction to the relevant literature, and then to provoke, stimulate and challenge the assumptions developed by the student.

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APPENDIX A

ECOLOGY

MODULE 1: ECOSYSTEM DYNAMICS AND STABILITY

Outline

The aim of this module is to provide an understanding of the dynamic nature of ecosystems, the meaning of diversity and its relationship to ecosystem, or community, stability.

Set Readings

Ehrlich, P.R. and Birch, L.C. (1967). The 'balance of nature' and 'population control'. *American Naturalist* *101*, 97-107.

Goodman, D. (1975). The theory of diversity-stability relationships in ecology. *Quart. Rev. Biol.* *50*, 237-266.

Holling, C.S. (1973). Resilience and stability of ecological systems. *Ann. Rev. Ecol. & Syst.* *4*, 1-23.

MacArthur, R. (1955). Fluctuations of animal populations and a measure of stability. *Ecology* *36*, 533-536.

Posamentier, H.G., Clark, S.S., Hain, D.L. and Recher, H.F. (1981). Succession following wildfire in coastal heathland (Nadgee Nature Reserve, N.S.W.). *Aust. J. Ecol.* *6*, 165-175.

Sutherland, J.P. (1974). Multiple stable points in natural communities. *American Naturalist* *101*, 859-873.

Further Reading

Krebs, C.J. (1978). *Ecology: The Experimental Analysis of Distribution and Abundance*. 2nd Ed. Harper and Row. Relevant parts of chapters 19 to 24.

Further papers referenced in the set readings.

Study Questions

These are not set questions that you must be able to answer. Rather they are to help you select important parts of the reading and to structure the information that you receive.

1. What is meant by stability? Are there different kinds of stability?

2. What is meant by resilience? How does it relate to stability?

3. Is there a 'balance' in nature, or are ecosystems always changing even over the short term?

4. Can fluctuating ecosystems be stable?
5. Is succession (ecosystem change) orderly and predictable?
6. What is meant by species diversity?
7. What is the diversity-stability hypothesis? Is the hypothesis useful?

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A GENERAL MODEL OF UNDERGRADUATE TEACHING AND LEARNING

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Some years ago I conducted a relatively unsophisticated research study (November (1981)) that involved offering my students a choice of learning method. Briefly I offered them three choices: standard lectures and tutorials, a self study package plus tutorials, and discovery learning where individual students designed their own course in collaboration with a tutor. I observed student choices at the start, during and at the end of the courses since I allowed students to change their minds. I also obtained information on examination performance in all students.

Perhaps I should have read some books on research methodology before embarking on this research because, looking back now, I seem to have put the cart well and truly before the horse. Instead of starting with a theory and then designing an experiment to test it I did the experiment first and am still struggling to find a theory.

I was unable to establish that one method was better than the others. In fact I came to have strong doubts about the whole concept of a 'best method'. The evidence I obtained suggest that:

a) What was right for one person on a course was not necessarily right for another person on the same course; and

b) Over time, the right method for a particular person changed.

This set me wondering why this might be, the starting point for theory development.

Something else happened at a more personal level. Because of my research I joined that gallant group of people known as educational innovators. In my department I was an innovator and I experienced the problems and the benefits of an innovator. There were very few benefits. This set me wondering again. Why do some people get involved in educational innovation while others seem more than happy doing the same old thing?

At first my ideas about staff innovators was unconnected to my ideas on students. I developed two theories, one of student behaviour and one of lecturer behaviour. However, gradually I have come to see that they were related and part of something bigger.

In early attempts to represent what I felt might be involved I ignored college administration. I concentrated only on lecturer, student and course constructs or variables. But as a small time innovator I came into close contact with the administrative forces that, regrettably, tended to discourage my efforts and seemed to totally discourage some of my colleagues. Administrative issues such as promotion , teaching allowances, and pay are important, particularly to those who seem to lack the natural grit that educational innovators have, a point supported by Davis (1979).

I do not propose to go through each stage of theory development other than to say that my early ideas were always expressed in diagram form. A few boxes connected by arrows and then more boxes and more boxes and more boxes. Then I came across a way of simplifying the complicated diagrams which I was using. For many years now marketing academics have developed and used diagrams to explain consumer buying behaviour. These diagrams have now become so complex that a mathematical format has become necessary; see for example Engel and Blackwell (1982). Basically this represents the relationship between variables represented by letter symbols in the form of an equation:

$$Y = f\ (A,\ B,\ C,\ \ldots.)$$

In case you have not come across this before it simply means that 'Y' is a function of A, B, C etc. For example volume is a function of the dimensions of an object, momentum is a function of speed and weight, price is a function of costs and profit. While in science this mathematical format is frequently used it is much less common in social science. Please do not discard it because it is unfamiliar or strange. It says the same as a diagram but whereas diagrams concentrate attention on the variables, the mathematical format tends to concentrate on the way in which variables are related. Another advantage is that from a practical point of view the mathematical format is more condensed and easier to put down on paper. It also allows consideration of a single equation, or a group of equations without needing to deal with the whole.

To illustrate its use I will apply it to every article in the first issue of Higher Education Research and Development, an issue easily accessible to many readers of this article.

Anderson and Eaton (1982)

Because this article covers so many research projects I will restrict myself to only the main theme which these authors followed, the issue of what factors affect successful graduation.

We can symbolise successful graduation by X_{ez}.

Anderson and Eaton explain that in the 1940s research followed the lines:

$$X_{ez} = f\ (X_0^1,\ N_{xs})$$

where X_o^1 is a measure of prospective students, particularly academic attainment.

N_{xs} is the selection criterion for students.

No clear relationship was found.

The next development was:

$$X_{ez} = f\ (X_o^1\ ,\ X_o^2\ ,\ X_o^3\ ,\ \ldots\ X_o^n\ ,\ N_{xs})$$

where $X_o^1\ ,\ X_o^2\ \ldots X_o^n$ were a series of measures of prospective students usually including psychometric, social and academic attainment measures.

N_{xs} is retained unchanged in most cases.

Again no clear relationship was found.

By the mid 1950s another school of thinking had emerged which regarded the problem as:

$$X_{ez} = f\ (N_{xe}\ ,\ T_t)$$

where N_{xe} is the examination regulations and procedures.

T_t is the teaching methods used.

Again no clear function could be obtained.

In the 1956-1965 period interest was directed at student conditions. In mathematical form the proposition was:

$$X_{ez} = f\ (T_t,\ R_{xs})$$

where R_{xs} is student services such as counselling, medical services and student accommodation.

Again no unequivocal relationship was established.

We will have to wait for the next Anderson and Eaton article in Higher Education Research and Development to find out what happened next.

Biggs (1982)

Biggs' study can be expressed as follows:

Some motivation and study strategy aspects of student behaviour is a function of the type of institution, the type of faculty, sex of student, year of study, educational plans, self-rated performance and satisfaction with performance.

Biggs (1982) broke this complex function into parts and gives ANOVAS (analyses of variation or the extent to which the variation in one variable can be explained by the variation in one or more other variables) for each part.

For example he found a clear relationship between the form of study strategy he calls 'Organising Strategy' and the type of institution and the year of study. Or more formally:

$$X_{sso} = f\ (I_t,\ X_{ys})$$

where X_{sso} is student organising strategy

I_t is institutional type

X_{ys} is student year of study.

Stanton (1982)

Unlike the previous authors, Stanton concerns himself with aspects of staff behaviour in educational institutions. While he has not formalised the relationship and although he gives no statistical evidence (a rather common feature of educational articles) he draws the conclusion:

> Staff performance at such things as research and the preparation of lectures = a function of their skill in the use of time, or
>
> $Y_p = f\ (Y_{tms})$

Prokhovnik (1982)

This article is difficult to summarise as an equation because it is written more in the format of an autobiography than a research report. Nevertheless it is easy to read, interesting and makes a contribution to educational technology. My view of what Prokhovnik is saying is:

> Lecturing skill = f (previous learning and teaching experience, a knowledge of educational technology, an understanding of student psychology).

Lublin (1982)

Lublin takes us back to the Anderson and Eaton (1982) main theme: what factors affect graduation success?

$$X_{ez} = f\ (X_0^1,\ X_0^2,\ \ldots.\ X_0^9)$$

where X_0^1 to X_0^9 are nine specific measures of the entry characteristics of a group of CAE students.

Lublin found that some factors individually predict X_{ez} more accurately than others but none are perfect.

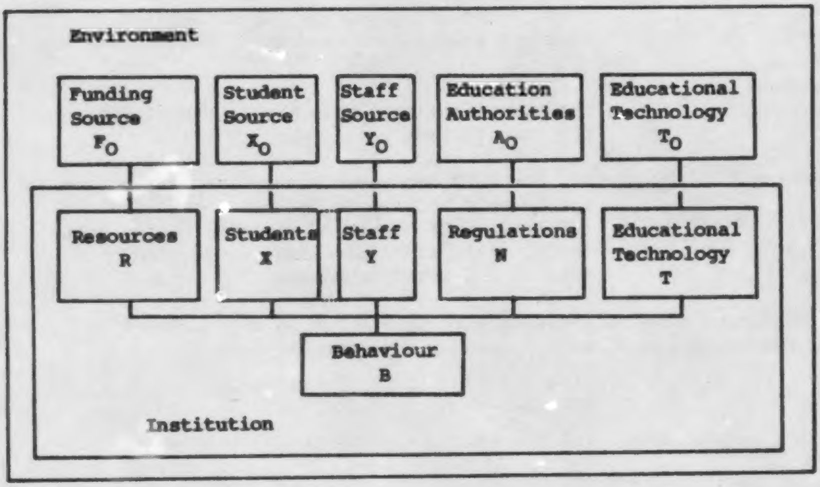
A GENERAL MODEL

Rather than jump straight into a detailed presentation of my model, I will start with a small number of general variables and then sub-divide them.

The model has two basic parts: the Institution and its environment. Within the Institution there are five components: People, Resources, Educational Technology and Behaviour. The environment also has five components: Source of Funding, Source of Students, Source of Staff, Education Authorities and Educational Technology.

Figure 1 represents this model as a diagram.

Figure 1. A General Model of Undergraduate Education


Environment
Funding Source F_O
Student Source X_O
Staff Source Y_O
Education Authorities A_O
Educational Technology T_O
Resources R
Students X
Staff Y
Regulations N
Educational Technology T
Behaviour B
Institution

The terms used are:

Funding Source F_O	: All sources of funds to the Institution but particularly government sources.
Student Source X_O	: The population ready, willing and able to participate in the Institute's courses. The definition of an 'eligible student' is normally contained in Course Regulations.
Staff Source Y_O	: The population qualified and interested in working for the Institute. The definition of 'eligible staff' is less likely to be prescribed in the Institution's Regulations,
Educational Authorities A_O	: The authorities vested with the power to authorise courses. Institutions vary in the extent to which this power has been delegated to them.
Educational Technology T_O	: Educational procedures, practices, approaches and methods, particularly as written about in the literature on Education.

Resources R	: The Institution's resources but excluding its Staff Y, Students X, Regulations N, and Educational Technology T. Included would be buildings, equipment, libraries and money.
Students X	: The students currently enrolled on all of the Institution courses.
Staff Y	: All the staff currently employed by the Institution.
Regulations N	: The regulation by which the Institution runs itself, and including the sub-categories Course Regulations Nc and Staff Regulations Ny.
Educational Technology Y	: The educational technology employed within the Institution.
Behaviour B	: All forms of behaviour within the Institution. For example this would include formal and informal staff meetings, students taking notes in lectures, staff markings examination scripts and inter departmental policies.

The next stage involves representing this model in mathematical form and developing equations for each of the components.

$$B = f_1 (R, X, Y, N, T) \qquad \ldots \text{E1}$$

these relate to each other and the external variables as follows:

$$R = f_2 (F_O) \qquad \ldots \text{E2}$$

$$X = f_3 (R, N, X_O) \qquad \ldots \text{E3}$$

$$Y = f_4 (R, N, Y_O) \qquad \ldots \text{E4}$$

$$N = f_5 (Y, A_O) \qquad \ldots \text{E5}$$

$$T = f_6 (R, X, Y, N, T_O) \qquad \ldots \text{E6}$$

The next stage involves identifying sub-sets for each of these variables. This leads to a complex set of equations which are better treated individually even though they constitute a set.

Behaviour

$$B = f_7 (B_a, B_e, B_x) \qquad \ldots \text{E7}$$

Where B_a = Administrative behaviour such as faculty meetings, student admission and politics.

B_e = Educational behaviour such as lectures and study.

B_x = Other forms of behaviour such as sport and cultural activities.

This function is probably linear.

Resources

$$R = f_8 (R_f, R_b, R_e, R_s) \qquad \dots E8$$

where R_f = financial resources

R_b = buildings

R_e = equipment

R_s = services

This function is probably linear.

Students

$$X = X_{11} + X_{21} + X_{31} + X_{12} +, \dots . X_{nc} \qquad \dots E9$$

where X_{nc} are the students in the 'n'th year of course 'c'. As expressed here the function is a summation of all students on all courses.

X_{nc} in turn is:

$$X^1_{nc} = X^1_{nc} + X^2_{nc} +, \dots . X^m_{nc} \qquad \dots E10$$

where X^m_{nc} is the 'm'th student in the 'n'th year of course 'c'.

We have now got down to an individual student, X^m_{nc} and can therefore seek an appropriate development such as:

$$X^m_{nc} = f_{11} (X^m_k, X^m_s, X^m_p) \qquad \dots E11$$

where X^m_k is a student's level of knowledge, particularly in the course subjects.

X^m_s is skills a student has, such as study skills.

X^m_p - relevant psychological constructs such as motivation and ambition.

A common but dubious substitution for X^m_k is:

$$X^m_k = X^m_e \qquad \dots E12$$

where X^m_e is a student's performance in examinations and other forms of assessment.

If Equation E11 is not linear, as I suspect, then a change in one term could affect the other terms. In other words if E11 is not linear we should assume that as students develop their knowledge of a subject they simultaneously change on other dimensions.

Staff

$$Y = f_{13} (Y_t, Y_a, Y_s) \qquad \dots E13$$

where Y_t - teaching staff

Y_a = administrative staff

Y_s = service staff

Where some staff have more than one role, for example where a lecturer does teaching as well as administrative tasks, this function is unlikely to be linear.

A particular staff member can be identified by using superscripts.

For example Y_t^n would be the 'n'th member of teaching staff:

$$Y_t^n = f_{14}\ (Y_k^n,\ Y_s^n,\ Y_p^n) \qquad \ldots\ E14$$

where Y_k^n is a lecturer's knowledge of subject taught.

Y_s^n is a lecturer's teaching skills such as examination setting, and lecturing.

Y_p^n is relevant pyschological constructs for a teaching staff member such as enthusiasm for the subject and attitudes.

Equations similar to E14 can be developed for administrative and service staff. None of these equations are likely to be linear.

Regulations

$$N = f_{15}\ (N_c,\ N_y,\ N_s) \qquad \ldots\ E15$$

where N_c is course regulations

N_y is staff regulations

N_s is service regulations

Course regulations are the sum of individual course regulations:

$$N_c = N_1^1 + N_1^2 +,\ \ldots.\ N_c^n \qquad \ldots\ E16$$

where N_c^n is the 'n'th regulations for course 'c'.

Course regulations would include such things as selection standards course structure. Some of these regulations could easily be common across all courses at a particular Institution.

Staff regulations are:

$$N_y = f_{17}\ (N_{yt},\ N_{ya},\ N_{ys}) \qquad \ldots\ E17$$

where N_{yt} is teaching staff regulations

N_{ya} is administrative staff regulations

N_{ys} is service staff regulations

Here I will only develop N_{yt}:

$$N_{yt} = f_{18}\ (N_{th}, N_{tw}, N_{ts}, N_{te}, N_{tt}, N_{tv}, N_{td}, N_{tp}\ \ldots)\ \ldots E18$$

where N_{th} = rules and standards for employment

N_{tw} = work allocation regulations, particularly teaching loads and administrative tasks

N_{ts} = remuneration rules

N_{te} = procedures for evaluating staff

N_{tt} = tenure rules

N_{tv} = vacation entitlement

N_{td} = professional development program

N_{tp} = promotion policy

As you can see I do not regard E18 as complete. I also doubt that it is a simple linear function.

Service regulations comprise things like library and student accommodation regulations.

Educational Technology

$$T = f_{19}\ (T_1, T_2, T_3\ \ldots.\ T_c) \qquad \ldots E19$$

where T_c = the educational technology used on course 'c'.

Since educational technology comprises a wide range of techniques, from the use of OHPs through to computer assisted learning and the use of remedial classes, T_c would normally represent a range of inputs. Also many courses could well be using similar approaches and therefore the components T_1, T_2 etc. may be similar or identical in some cases. T should therefore not be calculated by simple summation but by factor summation.

A New Teaching Method

Returning now to the main equation, E1, and substituting, the problem of explaining behaviour becomes all too clear. As an example, I will use the adoption of a new teaching method by a lecturer, symbol B_e^{nm}, as the form of behaviour I wish to explain:

$$B_e^{nm} = f_{20}\ (R, X, Y, N, T) \qquad \ldots E20$$

where f_{20} denotes a different function than the one given in E1.

Substituting from E8, E10, E14, E15, E17 and E19:

$$B_e^{nm} = f_{21}\ (R_f, R_s, R_s, X_{nc}, Y_k, Y_s, Y_p, N_c, N_{yt}\ T_c) \quad \ldots E21$$

Some of these variables will no doubt have only a slight effect on the adoption, if any, of the new teaching method. However E21 comprises ten variables, many of which, such as X_{nc} and N_{yt} are highly complex in themselves. The notion that new teaching method adoption can be achieved by changing one variable in E18, for example N_{td}, the professional development program, seems highly unlikely.

Fortunately because T_O, Educational Technology as contained in books, journals and in educationalists' minds, is a developing science, equations such as E21 are becoming less daunting since individual studies are gradually revealing the jigsaw pieces that, one day, will provide us with a more complete explanation of behaviour in educational institutions. The earlier section based on the first issue of Higher Education Research and Development illustrates this point.

CONCLUSION

My original objective in theory building was to explain why my students behaved as they did when given a continuous choice of learning methods and why some staff innovate whereas others do not. As I developed theories I began to realize that a great many variables affect behaviour in educational institutions. My attempts to illustrate this, based on a methodology developed in Marketing, are given here.

As a practitioner rather than a researcher I find educational research articles of little value because they tend to focus attention on one small aspect of education which is interesting to the researcher. It is as though each researcher is cutting his or her own path with only a passing interest (usually for the purposes of citation) in earlier connecting paths. Outsiders (most lecturers) are faced with a jungle through which many paths are being cut but no map. A general model which can accomodate considerable detail such as the one proposed here could provide a means of relating all the paths so far cut and also show which parts of the jungle need further attention. Until this is done lecturers will continue to buhave as people with a limited survival kit.

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HUMOUR AND TEACHING

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There is something rather amusing about the idea of engaging in a serious discussion about humour: it reminds us of the professor who dreamt that he was giving a lecture and woke up to find that he was. By its very nature humour may seem antithetical to the seriousness and solemnity which, perhaps quite properly, usually characterises teaching and research. James Thurber, on the other hand, claimed that humour is a very serious matter which constitutes a natural resource to be preserved at all costs. Maybe we should end here and not risk approaching the folly of Sartre's celebrated four hour lecture on the iniquities of the lecture system in French universities.

It is often claimed that humour is a desirable characteristic of teachers and teaching (Highet, 1951). Surveys of learners' opinions about the qualities which they hope to find in their teachers often identify one of these to be a sense of humour (Witty, 1950). This is reflected in instruments used to gather information on teacher effectiveness which sometimes include items explicitly concerned with the use of humour and almost always incorporate items relating to teacher warmth and friendliness which imply an element of humour (Baird, 1973). Further, the literature on human communication and public speaking techniques gives a good deal of stress to the role of humour in these areas (Taylor, 1964).

This is a topic which is clearly of interest to teachers and learners yet it has been strangely neglected in both the research literature of higher education and in works which deal with techniques of teaching. We shall begin by identifying the reasons which are commonly given for attaching importance to humour in teaching, then examine some of the empirical evidence which bears upon the relationship between humour and learning, and conclude with a discussion of the implications of this for professional development activities.

VALUE OF HUMOUR

One justification for the use of humour in teaching, and this may be the only really acceptable one to a hard-nosed empiricist, is that it directly promotes learning by assisting comprehension and aiding retention of what is being learnt. The use of humorous illustrative examples is believed by many teachers to serve this function and be thus directly linked with learning. You may recall this point if we draw your attention to the professor at Edinburgh University in the 1880s who, when asked why he had failed a student in anatomy, replied: 'He said that the cow has no anal opening and I cannot pass him.'

The more widely held view, however, is that humour serves a more indirect function by contributing to the creation of an atmosphere in which learning is more likely to occur. If students adopt a positive attitude towards a learning task and to their teacher then they are more likely to approach the task with enthusiasm and perhaps wish to come to share the interests, attitudes and knowledge of the teacher. This view sees humour, and enjoyment generally, as being features of a classroom environment which is more apt for the production of learning than one from which they are absent.

Another commonly held justification is that humour is well-known to be an effective device for gaining and maintaining the attention of an audience, and for reviving attention if it is observed to be waning. The use of humour for this purpose thus makes an indirect contribution to learning.

There is also the claim that the appreciation of humour aids cognitive development by involving the use of linguistic skills, often of considerable complexity. This is of general importance but has particular relevance to the learning of foreign languages (Trachtenberg, 1979; Vizmuller, 1980).

A less widely held view is based on the premise that life was not meant to be boring. As humour enhances the quality of life, teachers have a responsibility to use humour so as to make the lives of students more agreeable and enjoyable. Those who adopt this position would obviously not be dismayed if it proved impossible to demonstrate any connection between humour and learning.

Finally, there is the belief that, independently of any other considerations, humour is to be valued for the benefits which it confers upon the teacher. Teaching is an exacting and often unrewarding activity which may be made more sustainable if the teacher is able to derive satisfaction from arousing a positive response from students through the use of humour. The overlap between teaching and acting lends some plausibility to this view. It might even have some therapeutic value as is claimed by Wagner and Goldsmith (1981, p. 17): "It might cure such ailments as: feelings of isolation and estrangement from students; exaggerated sense of one's own importance; and even career burnout."

HUMOUR AND LEARNING

The scientific literature on this topic is sparse and, as in many areas of deep human significance, inconclusive. Humour appears to have been a taboo topic as far as most experimental psychologists have been concerned and this is reflected in the textbook literature (Browning, 1977). The research literature, published prior to 1971, which deals with humour generally has been surveyed by Goldstein and McGhee (1972). Gruner (1976) has reviewed the literature relating to humour in mass communication and concludes that there is little evidence of any connection between humour and learning, and that even some of this may be negative. He points out, however, that experimental studies are usually conducted in settings which are very different from real life situations, especially where humour is involved. In other words, there may be a closer relationship than it has so far proved possible to demonstrate.

A substantial study by Ziv (1979a) examined the contribution made by humour to the creation of a positive atmosphere in the classroom and concluded that:

> "... the fact that children appreciate this trait [sense of humour] in a teacher, and that we were able to predict - and find - certain types of atmosphere in different classrooms based upon each teacher's sense of humour, is important and confirms beyond doubt that it plays a significant role." (p. 22)

Several studies looked at the value of humour in securing audience attention. Gruner (1970) and Markievicz (1974) showed that humour can increase attention and interest in a topic but not that comprehension and acceptance of a message is enhanced. Weinberg (1974) mixed humorous and serious examples in the same lecture and found no differences for the comprehension and retention of the adjacent material. This is consistent with the findings of Bryant et al. (1981) which showed similar effects for the use of humorous illustrations in textbooks. Weinberg, however, did find some evidence that the use of humorous material tended to help the brightest and least anxious students but acted negatively for the less able and more anxious. Kaplan and Pascoe (1977), in a well-designed experiment in a university setting, also looked at possible direct links between humour and learning. They found that although comprehension was not affected by the use of humour there was better recall of humorous examples. Overall test performance, however, did not improve significantly for those classes given the 'humorous treatment' compared with those who were treated seriously.

Ziv (1979b) has reported a number of investigations concerned with the linkage between humour and the concepts being taught. His results indicate that if the introduction of a concept is followed by a humorous example and then an explanation of the concept, test performance is improved. He suggests that humour serves to illustrate, reinforce and make more comprehensible the material being taught. It also helps to create an emotionally pleasant atmosphere which will encourage retention of the content. He stresses the importance of carefully designing the humorous illustrations so that they clearly relate to the concept, and of administering the correct 'dose' of humour. If an excessive amount of humorous material is introduced then an appropriate atmosphere for learning will not be maintained and the students will tend to focus on the wit of the teacher rather than upon the content of what they are supposed to be learning. The latter point is supported by the work of Taylor (1974) and Gruner (1976) who found that an excess of humour can serve to undermine the credibility of a speaker and lead to him or her being perceived as a frustrated comedian. A number of books on public speaking (e.g. Bassindale, 1976; Walker, 1982) also warn of the risk of appearing clownish rather than appropriately amusing.

Ziv (1976) reported that adolescents who listened to a humorous recording performed better on a test of creativity (divergent thinking) than did a control group. He suggests that this may be related to a more relaxed classroom atmosphere, more unconventional forms of expression resulting from shared laughter, and a reduction in anxiety. It is relevant here to mention a small study by Mogavero (1979) which showed that students believed that humour helped to maintain their attention and interest, relieve monotony, and reduce anxiety.

Bryant et al. (1980) looked at possible sex differences in the use of humour by college teachers and student responses to this. They found that sexual humour was more appealing to an audience of the opposite sex, but that lecturers who use self-disparaging humour are likely to be more appealing to members of their own sex. They suggest that female lecturers should avoid the use of sexual humour and males should avoid self-disparagement. Surely a good example of the theory of reinforcement.

To conclude this section we summarize a survey of Bryant et al. (1979) of the extent to which humour was used by teachers in the university. They arranged for students to surreptitiously tape-record 70 lectures which were then content-analysed. This showed that 20% used no humour at all, 50% used one to three humorous episodes, and 5% introduced humorous elements on more than ten occasions. No age differences emerged. Most of the humour appeared to be spontaneous, but this finding must be treated with some caution as the researchers had no access to the lecturers' notes. Nearly half of it was used to convey hostile or sexual messages. The bulk of the humour was closely related to the content of the lecture and thus presumably made some contribution to getting an educational point across.

IMPLICATIONS FOR STAFF DEVELOPMENT

For teachers the lessons to be drawn from these results are limited but reasonably clear. Humour is useful as a device for gaining and maintaining attention and interest. It may also reduce tension and assist creative thinking. Humour should be used in moderation in order to avoid undermining the credibility of the teacher. It should focus attention upon the content of what is being taught: irrelevant anecdotes should be avoided. One of the most effective uses would appear to be that of humorous illustrative anecdotes - or visual material - which are designed around the educational point being made: these are more readily recalled and thus help the student to access what has been learnt.

We accept that humour has a valuable place in most human communication, that it is likely to facilitate learning in a variety of ways, and that at the very worst there is no harm in teachers employing it in moderation. We now turn, therefore, to ways in which teachers might improve their ability to incorporate humour into their teaching.

When we have been involved in workshops on lecturing and tutoring the issue of humour has often been raised by participants, sometimes in a manner which indicates that they would like to make more use of it but feel constrained by the conviction that it requires a native trait in which they are deficient. This belief rests upon a misunderstanding. It is essential to distinguish what is involved in the creation of wit and humour from the presentation or communication of humour. The former certainly appears to involve some kind of native ability whereas the latter calls upon a set of skills which can be learnt. Professional comedians may need the assistance of creative script writers to produce their jokes but their own expertise lies in their ability to put the material across to an audience. This demands skills which can be learnt and developed through observation and practice and is in principle no different from many other elements in the teacher's repertoire of skills.

This is not, however, the case with the production of witty remarks. These necessarily involve spontaneity. Witticisms cannot be conjured up on demand or manufactured by the application of rules. If this is so then there is no skill involved which can be taught and therefore nothing which can be learnt. The wit is the manufacturer of humour rather than its retailer. In this paper we are concerned only with the retail side of the business, with the selling of humour rather than its creation.

The most basic elements in this component of the skill of teaching seem to be the following. First establish a filing system, suitably indexed and cross-referenced, which can accommodate material which looks as if it might possibly be of use. Keep a constant lookout for items which appear relevant so that the file is continually expanded. Items to be used in teaching will need to be carefully selected and tailored to the details of the subject-matter before teaching takes place. In addition, it is helpful to consult the wide range of guides and resource materials which are available in libraries: some of these also contain useful advice on the techniques involved in preparation and presentation (e.g. Bassindale, 1976; Jessel, 1973; Walker, 1982). Of special value to teachers are anthologies of material relevant to particular disciplines (e.g. Anon, 1968; Asimov, 1971; Read, 1947; Weber, 1982).

The activity of teaching requires a sense of timing and an alertness to the response of the learners. These are both skills of central importance in the communication of humour, and they are skills which can be developed through practice. The same applies to the use of the voice and bodily movements, both very important to both teachers and professional humorists. There is no reason why skills such as these should not find a place in professional development programmes for academics. Their wider deployment would not only be appreciated by students but would also add to the happiness of teachers, an outcome greatly to be desired in these difficult times.

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CHAPTER 10

APPLICATION OF EDUCATIONAL TECHNOLOGY TO TEACHING AND LEARNING

Making teaching a more rewarding experience can also be achieved by knowing what resources are available, are appropriate and are effective for specific learning tasks. Educational technology is limited for some to overhead projectors, for others it may mean complex computers or using satellites.

Russell studied the use of overhead transparencies, slides, and 16mm film. Her paper, "How media materials are used in university instruction: reports of selected university faculty" considers the preparation of media, the mechanics of classroom use and the importance of suitable classroom facilities. Russell advocates more provision of facilities so that lecturers who want to make their own media materials to enhance their presentation and facilitate student learning are supported in this attempt.

Smith in "CAL in technology: directions for future development" shares strategies and rationale for using and modifying existing computer programs in engineering. From his own expertise and experience he is able to recommend procedures which are applicable not only to engineering but also to CAL programs in many other disciplines.

Yates argues "A case for better software in biological education". He starts by looking at electronic arcade games and examines their attraction to youth. Of particular interest is how their attractive features can be transferred to CAL in education. He believes that superior quality and rapid feedback as is available on the arcade games would motivate students. Yates describes various simulations and argues for making use of the highest technology available in the interest of effective teaching and learning.

The last paper in this volume shows another path to growth, or perhaps rather to survival. Lundin, in "Knowledge networks through satellite communications as a basis for continuing education at a distance" argues that tertiary institutions need to examine and support the educational use of technology if they want to survive. Thus he pleads for the recognition of the advantages which participation in the knowledge network can bring to all institutions and a wide section of the community.

HOW MEDIA MATERIALS ARE USED IN UNIVERSITY INSTRUCTION:

REPORTS OF SELECTED UNIVERSITY FACULTY

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How are media materials used in university instruction? How does their use influence class preparation and the mechanics of lecturing? How do classroom facilities and centralised instructional media services influence the nature of media materials use by individuals?

My descriptive study examines the personal perspectives of twenty selected university media users. The complete study (Russell, 1981) involved an analysis of personal perceptions as to why, what, when, and how media materials are used in unversity instruction. This paper will report findings related to the last of these four questions: namely, 'How are media materials used in university instruction?'.

The media materials identified in this study are limited to electronically augmented materials such as overhead transparencies, slides and 16mm films.

RATIONALE FOR THE STUDY

Research concerning the use of media materials to enhance learning has provided contradictory evidence as to their effectiveness in the learning process (Campeau, 1974; Jamison, Suppes and Wells, 1974; Parkhurst, 1975; and Schramm, 1977). While researchers look for evidence of media effectiveness, an important variable seems to have been overlooked -- the teacher.

I believe the ways a teacher presents information to learners can influence the use and effectiveness of media materials in an instructional situation. If a teacher believes the use of media materials is important for student learning and feels comfortable using such materials that teacher is likely to use those materials effectively.

Some researchers (Tobias, 1966, 1969; Armsey and Dahl, 1973; Purdy, 1973, 1975; Dodge, 1974; and Schramm, 1977) have studied teachers involved in mediated or programmed instruction; my interests concern those teachers who integrate media materials within their personal lecture presentations. How do those teachers perceive their use of media materials as an instructional strategy?

METHODOLOGY

For this descriptive study a questionnaire and personal interview was used to gather information concerning the personal beliefs on media use by lecturers who frequently used media materials in their instruction.

Only faculty members at the University of Oregon who were known to use media materials frequently in their instruction were selected to participate in the study. I formulated a list of lecturers who used media materials in their instruction in consultation with the staff of the Instructional Media Center and students from many subject areas in the University.

Twenty lecturers were invited to participate in the study. To ensure a wide cross-section of subject interests, lecturers were selected from the following subject departments: Anthropology, Architecture, Art Education, Art History, Biology, Dance, Education, Educational Policy and Management, Film and Television Studies, Geography, German, Health Education, History, Journalism, Marketing, Music, Psychology, Recreation and Park Management, Sociology, and Spanish.

Profile of the Study Group

Age: The ages of the respondents ranged from early thirties to early sixties.

Sex: The study group approximated the ratio of male and female lecturing staff at the University of Oregon -- sixteen males (80%) and four females (20%) took part in the study.

Academic Qualifications: Fourteen (70%) of the respondents have Ph.D. or Ed.D. degrees.

Number of Years Teaching in Higher Education: The average number of years respondents had taught at college or university level was 15 years. Every respondent had taught at this level for at least four years.

Academic Preparation in Media Production or Use: Fourteen (70%) of the respondents had had no formal training in media production, or the use of media materials for education.

Location: The University of Oregon is a research-oriented university where faculty members are required to publish books and articles in quality research journals, in addition to normal university teaching, advising, and committee responsibilities. At the time of the study the University was suffering large financial cuts and this factor was frequently mentioned by the study group when discussing costs and quality of university facilities affecting their use of media materials in instruction.

Development of the Data Gathering Instruments

A combination of questionnaire and personal interview was used to collect data for this descriptive study. The questionnaire and interview schedule was each developed specifically for this study. Each was pilot tested and revised before being presented to the study participants.

The self-administered questionnaire was presented to each respondent at an initial twenty-minute personal interview. The responses provided basic information related to the background experiences of the respondents concerning their training, and use of, media.

The main (hour-long) interview was recorded on audiotape. This interview was designed to encourage respondents to explore and report their reasons for developing instructional strategies that require the use of media materials.

In relation to the general question, 'How are media materials used in instruction?', I posed the following questions:

1. How does the use of media materials affect class preparation?
2. What are the mechanics of media materials use in the classroom?
3. Do classroom facilities affect the use of media materials in instruction?
4. How does the centralized Instructional Media Center influence the nature of media materials' use?

In response to my questions, respondents spoke at length of how media materials are used in their instruction.

The question sequence of the main interview was flexible in order to accommodate the natural direction of conversation. All questions were covered in each interview.

Analysis of the Data

The data collected from the questionnaires were translated into frequencies and averages. The tape-recorded interviews were systematically analysed and interpreted through content analysis. The content analysis was carried out by:

1. Listening to each interview tape and transcribing significant information to provide part-transcripts approximately sixteen pages in length.
2. The part-transcripts were analysed for content pertaining to the questions posed to the the respondents.
3. This content was further categorized into sub-headings pertaining to each interview question.

THE FINDINGS

Words of wisdom and enthusiasm came from all directions during the interviews. Though 70% of the respondents were untrained in media use, their gut level responses to my questions produced some textbook answers concerning how they use media materials in their instruction. Media materials are typically integrated into a lecture to provide illustration, emphasis and variety. Both physical and personnel support services influence how media materials are used in university instruction at the University of Oregon.

The findings of the descriptive study are best reported in the words of the respondents. How media materials are used in instruction will be reported in relation to class preparation, mechanics of classroom use, classroom facilities, and influence of the Instructional Media Center.

Preparation for Class

The respondents generally consider preparation for classes involving the use of media materials will take longer the first time a course is taught. The preparation of new media materials requires creation time, while commercial media materials need time to be located and previewed. Once the materials have been prepared and/or used, class preparation is not so time-consuming.

It is interesting to note that each of the selected respondents has taught for a minimum of four years. Perhaps the first few years of teaching do not permit time for media preparation and selection of commercial materials.

In the words of one respondent:

> "My preparation for class is very uneven. If I am actually preparing materials, it takes a great deal of time. Now once you get the materials prepared it is like having a library -- it is possible to go to the cabinet, pull out the illustrations or particular package you have prepared."

Seven respondents reported that their use of media took extra preparation time.

> "The time-consuming preparation of worthwhile media materials is like building one's own library of resources."

> "At certain times using the media requires a great deal more preparation. The tapes I will use today I did several months ago. If I didn't have them ready I would spend three or four hours getting the packages ready for class. That is time-consuming. I guess that is one reason why some professors stay away from creating materials -- there is not enough time."

Once time has been spent in preparation of media-related instructional strategies, the next time the subject is taught preparation time is available for identifying further media materials.

> "There are times that media use really helps me in terms of time. It provides me with forty-five minutes fill-in space so there is actually less time I have to be concerned about that particular class. That shakes me loose to work on other classes or to prepare new materials

> ... it's a kind of constant thing. I would never sit ... I really try to use new materials every class -- I don't want to be bored either."

Frequently the nature of media materials requires advance planning. Films, for example, are usually accessible to faculty from many institutions and need to be booked several months in advance. Special course planning to accommodate films tends to place limitations on the flexibility of how a course will run:

> "Media use forces me to be more organized than I would otherwise be, and forces me to stay closer to some kind of schedule -- because I order the films at the beginning of the term ... I have them scheduled for certain dates so I have to make sure that I am dealing with the appropriate (subject) material (when they arrive)."

Another respondent is not prepared to be manipulated by previously scheduled films:

> "I stopped using films ... It was always a hassle to schedule films to get them there, to play them ... I had to order the films some large period of time before I want to show them -- two months or something ... The way I want to use film is to come to a particular point in the lecture where that film is relevant ... Now I can never be sure whether that is going to come on Monday or Wednesday or Friday of that particular week. Now when the film comes out of sequence it does you no good, or some good, but very little good. It is just not worth the hassle."

Preparation for including slides within a lecture is described by one respondent:

> "For each hour lecture it takes about two hours to pull the slides and arrange them. It took much longer when I first arrived here -- because I didn't know how the slides were filed. I now know where the slides are. Some preparation is done at home and some (at the University) usually the evening or two days before (a lecture). This gives me some time to reflect on what I am going to talk about -- or I might think of a different way of arranging my lecture .. or pulling some material out that is tangential ... There are several light-tables in the slide room ... You lose a certain immediacy when you do it several days in advance."

Sorting slides into a sequence appropriate for a visually enhanced lecture is like sorting notes for a spoken lecture.

Preparation for class involves setting up equipment in classrooms. Respondents resent having to haul equipment to their classroom and set it up. This is a major factor in promoting a negative attitude toward the use of media materials at the University of Oregon.

> "There are some practical problems that interfere with the use of all these things ... Depending on where (I am) teaching ... I have to pick up the overhead projector ... carry it to the classroom, set it up and after class take it ... back to the location where I got it. That's a pain. I suspect I would use overheads even more if by some wave of my hand I could make one appear in every classroom ... It is a pain and I guess I do resent having to do it."

and:

> "On certain days if I want to show something in class I have to haul a bunch of materials up to the next floor myself -- there is no permanent place to store (equipment). I have got to set it all up and take it all down before the next class begins -- trip over wires so that the next person can get in -- he or she may not be using media materials and may be upset that it takes so much time. It limits my enthusiasm temporarily, but I will still do it because I think it is very valuable."

In spite of preparation time and other hassles relating to use of media materials and equipment, respondents will use media materials in their instruction because these form an essential ingredient for their presentations.

Mechanics of Classroom Use of Media Materials

Typically respondents reported their class presentations used media materials integrated within the lecture presentation. Slides and overhead transparencies are used to provide illustration or emphasis during a verbal presentation, while 16mm film generally is introduced, shown, and followed by class discussion.

The thinking and planning behind a typical lecture is described by one respondent:

> "Let's take the introductory Psychology class -- typically a fifty-minute class, three times a week. The class would start with an overhead of the outline ... and then I would both lecture and use the overhead projector to write down words that were unfamiliar, to sketch out graphs, etc. I would also have from three to ten prepared transparencies for that lecture -- very seldom would there be a lecture where I didn't have a prepared transparency. I would use both the roll with my own notes on it and prepared transparencies ... it's typical to have both slides and transparencies ... If there is a film, I know how long the film is and at which point to put it in. I will take eight or ten minutes to talk about it and then we will show the film and I will have 'x' minutes left. I know how the whole hour is going to be, because I know approximately how many minutes the film is going to take. Both films and slides tend to force a structure more than the overheads do."

Media, in this way, becomes an integral part of the class and does not stand apart from a straight lecture presentation.

Four respondents reported they would use a variety of media formats in a typical lecture. The explanation given by one respondent:

> "I like variety ... If I am going to use overheads I will use several and then I will stop and have several slides. If I have to flip back and forth I will apologize to the class because it is distracting and takes time. Maybe it wakes them up a bit! One hundred slides in a row is deadening, actually."

Three respondents reported they would use only one media format during any lecture:

> "I don't use two different sets of media equipment in one lecture. I will try to make a choice. Essentially there are twenty lectures in a term and I do not want to get myself or students relying on input without the appropriate amount of expressive activities ... Media tends to become very passive if you let it ... It is a kind of discipline I follow. To go along with one media format and ensure that there is time for the expressive part that follows the receptive part. Just passive receptiveness is very limiting."

Each media format is used in a special manner by respondents. Slides are reported as being a cue and stimulus for student reaction:

> "(The slides) trigger my response ... The pace of slides allows you to just sit and watch them. It is possible ... that you can show slides and talk about them and stop talking and leave the slide on, and the students' minds keep on working. It is all holding in a kind of precise ambiguity or a kind of openness ... With up to 100 people we can have a discussion, after that it is pretty hard ... It is absolutely necessary to have discussions ... partly because of the many messages that come from slides ... I use slides like a vocabulary."

Overhead projectors are one of the most frequently used pieces of equipment:

> "I set up ahead of time and have something on the screen ... (so the people know they are at the right place). I also put on early the goals and objectives ... and run through those with the people so they know what to look for. I utilize (the overhead projector) a good part of the time, but also try to remember that there are times when I am not utilizing it, and turn it off so that the light is not on, and (students) are not being distracted by something that is not being (discussed)."

Another respondent describes his typical use of the acetate roll with the overhead projector:

> "I stand in front of the students, beside the overhead projector and just start giving the lecture and writing down as I go ... important things --- my outline, the topic or question I am approaching, I discuss the experiment that bears on that question, draw a diagram, expect students as a group to respond ... and if someone asks a question that relates to what I talked about ten minutes ago, I can roll it back and there it is and I can amplify right there."

This respondent also uses the overhead projector creatively to demonstrate various biological concepts. He uses a mutant fly which is temperature sensitive and puts it in a clear container on the overhead projector -- the heat from the projector makes the fly active. Various aspects of the operation of the central nervous system are demonstrated.

Films can be used like a guest lecturer where they take over the instruction of the students for a class period or part of the period. One typical class where film is used is described as follows:

> "I have to transport the class over to the Instructional Media Center to show films in a studio because I don't have a classroom that is appropriate for showing films ... Generally when everyone finally remembers that they are supposed to be over there instead of in the classroom, already five minutes of the period have gone. I usually give a very brief introduction to remind them what they are seeing and to highlight a couple of things that they are going to see in the movie and tell them to pay special attention to that. I ask the projectionist to turn it on. Generally there is at least one breakdown before we get very far, that is not their fault -- the equipment is old and there is no money to buy any new equipment. We see the movie -- people generally watch rather intently -- I don't know if that is because the movie is that exciting or just because they think there is likely to be something on the exam about the movie, and there usually is. If the movie ends before the period is over, I go back to the front of the class and ask if people have any questions about the material they have been seeing. And I also ask them to do a little evaluation -- what did they think of the film? What did they get out of it? I notice that they sometimes start taking notes if I say something or answer a question. They do not realize that the comments from their fellow students are much better than some of the comments I make!"

The Importance of Suitable Classroom Facilities

The respondents generally believe the classroom facilities at the University of Oregon are not satisfactory:

> "The classroom facilities are nowhere near ideal ... I would say they are not really even adequate. I

> suppose that at some level the political decision is where you spend your money."

Classroom facilities are a major consideration in the successful promotion of the use of media resources. In this study most respondents reported negative feelings toward teaching spaces assigned to them. Where media use is essential for a particular course some respondents have insisted on being allocated a suitable room:

> "Some classrooms are not very good. One did not have good screens, and I gave up on a few films. But for the World Health class I made sure that I have a good room. If you don't have a good image there it is really distracting ... If the facilities are not good I eliminate using some media that I would normally use."

One respondent was insulted when it was suggested he should alter his teaching style to suit the classroom facilities:

> "I found that someone had anchored the podium to the platform in the front and fastened the (slide projector remote control) to the wall so that you couldn't walk around with the trigger in your hand ... I asked if anyone could please change this because I have to be able to walk around when I talk with the trigger in my hand and point to things on the image ... (They) started telling me that I should change my lecture style!"

The Value of the Instructional Media Center (IMC)

The success of the Instructional Media Center is dependent on the attitudes of the IMC staff and the faculty members who use the services. The IMC has much to offer, and the present staff is reported on in favourable terms, although negative memories remain.

One respondent used the IMC services when he first arrived at the University of Oregon nine years ago, and found the services to be unsatisfactory. His knowledge of the current services offered were negligible and he spoke of a person who left the IMC six years ago:

> "I did use (the IMC) initially but don't anymore ... I had nothing but unhappy experiences with 'X' ... I finally gave up. It was just too hard."

On the other hand present users of the IMC reported being generally happy with the services offered and nature of the personnel:

> "The IMC staff are excellent, they are organized and they will break their backs ... These people are very dependable ... Their newsletters are very important. They ask you to be patient ... It's a feeling of belonging to something, where you know they are trying."

and:

> "The IMC staff is great at consultation and continuity of support. They take someone who doesn't know something and help ... They are good at furnishing someone who has expertise, or they will proceed to give us a lesson so we can become independent ... The co-operation has been fantastic ... with ideas and the kind of things I need forthcoming."

A perennial problem with service center staff seems to be a high turnover rate:

> "I like to use films, but it is a pain for me to schedule them ... The staff at the media center has had a lot of turnover. I frequently feel it's time for me to train a new film programmer again, and that gets to be old after a while ... the inevitable slip-ups I have noticed this year were a lot easier to bear and there were a lot fewer of them because of this particular group of people."

The IMC staff produces a two-page newsletter providing information about current services and new films added to the film collection. An insightful comment was made by one respondent:

> "The media center offers a lot. They publicize with their fliers, but one also had to be oriented towards using media before that clicks."

DISCUSSION

It follows from the study that the key to how media materials are used in university instruction lies with the orientation of the lecturer. The lecturer who believes in using media materials in instruction will generally take the time and effort required to incorporate media into many lectures, especially when the materials and equipment are available without hassle.

How can lecturers who do not use media materials be convinced of the importance of using media materials in their lectures? It is only with constant use that lecturers will become comfortable in their integration of media materials as part of their teaching strategies. The initial use of media materials must meet with success, especially in the operation of equipment and design of classroom facilities to ensure optimum conditions for projection and sound and consequent re-use of the medium by a lecturer.

The use of media materials in instruction does influence lecture preparation time, especially the first time a course is taught. Is time allowed for such preparation for new courses?

Typically, class presentations involving media materials integrate those materials within a personal verbal lecture. Slides and overhead transparencies are used to cue, summarize, illustrate, and provide focus during a lecture presentation.

Sixteen millimetre film is generally presented to provide a common class experience as a focus to stimulate class discussion.

Eight millimetre film, filmstrips, videotapes, audiotapes and computer programs were not used regularly by respondents in this study. Eight millimetre film and filmstrips are considered to be eligible only for school instruction. Audiotapes do not have enough attention-getting value to be frequently used in university instruction. Videotapes are used infrequently either in the same manner as 16mm films or micro-teaching situations, and computers had not been easily accessible for integrating into instructional strategies by the respondents interviewed.

Many of the University of Oregon's classroom facilities are considered inadequate for media enhanced instruction. Though most of the respondents will try to 'make do' they feel a sense of frustration and sometimes avoid using media under poor conditions.

The attitudes of the personnel in the Instructional Media Center can influence the extent to which a variety of media materials will be used in instruction. A positive and helpful attitude can instill confidence and willingness to incorporate new media materials in course instruction.

IMPLICATIONS OF THE STUDY

How media materials are used in instruction may differ between individual lecturers. Different approaches to teaching must be taken into account by administrators and Instructional Media Center personnel. A lecturer will tend to use equipment and media resources more frequently if it is not a hassle to obtain either the hardware or the software.

The personal desire to use media materials to enhance a verbal presentation will lead a lecturer to produce or obtain suitable materials. Instructional Media Center personnel should be available to help produce such personal materials and offer suggestions for product design, but not to impose a structure.

University and college administrators would do well to support the purchase of raw media materials and to supply production facilities with capable instructional technologists to work with lecturing staff as they produce personally relevant resources.

Lecturers with financial, human and moral support will integrate media materials within their verbal lecture presentations when they feel the subject matter will become more meaningful to students.

Further research should be carried out with lecturers in different institutions in order to generalize beyond the selected respondents from the University of Oregon. This study has offered an attempt to begin a consideration of the personal perceptions of lecturers related to how they use media materials in their university instruction. The next step is to interview students to seek their perceptions of how lecturers use media materials in instruction.

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CAL IN TECHNOLOGY: DIRECTIONS FOR FUTURE DEVELOPMENT

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INTRODUCTION

Computer assisted teaching and learning has the potential to provide another dimension to the teaching and learning environment. The use of computers in most technology based disciplines is an established fact. However the use of computers in a particular subject area does not necessarily mean that the particular computer program is in fact a computer assisted learning (CAL) program or that its use is an application of CAL.

This paper will discuss some of the general groups of computer programs used in the teaching of engineering at a tertiary level and will attempt to identify those features which should be present before the program or the application can be considered to lie within the domain of CAL. The paper will show that many programs used in engineering teaching are in fact not designed for teaching or learning but can be suitably adapted to this need with minimal effort.

The advent of the microcomputer has renewed interest in the use of the computer as a teaching aid. Their low cost has meant that sufficient numbers can be purchased and department based learning centres constituted. Many academics have realised that the microcomputer, with its highly acceptable graphics capability, is an ideal teaching tool and development has started on software aimed specifically at teaching objectives. There are however significant problems associated with the development of computer based learning programs and this paper discusses these problems and attempts to provide guidelines for future work in this area.

Whilst the thrust of the paper is towards engineering, the problems and recommendations are valid for many other disciplines, particularly those with a science base.

COMPUTER USE IN ENGINEERING COURSES

The engineering profession was one of the earliest major users of the digital computer. The highly mathematical nature of many engineering problems together with the need to consider a range of alternative solutions made the computer an extremely valuable tool for the engineer. It was only natural that the many analysis and design programs written for engineering applications would also be used in undergraduate courses. Programs dealing with frame analysis, stability evaluation, finite element analysis and member design are used almost without exception in universities and colleges at the present time.

It soon became evident that whilst the use of these programs in education had obvious advantages, there were also some features which complicated their use. One of these adverse features was the rather cumbersome data input requirements. Data files had to be created, and rigid procedures and conventions followed. The result was that course time had to be devoted to instruction on how to run the programs and their use tended to become an application of computer science and not of engineering.

The potential of the computer in engineering education was recognised to the extent that some countries took steps to direct the development of programs to meet educational objectives. Featuring prominently was the work carried out under a five year National Development Program in Computer Assisted Learning in the UK as described in a paper by Smith (1976). The program looked at the development and implementation of CAL in the areas of mathematics, statistics, science, engineering and medicine. Similar work was carried out in the USA under a National Science Foundation grant. One of the significant features of the programs developed under these grants was the simplicity of use of the programs and the emphasis placed on graphics. The user friendly nature of these programs meant that computer system knowledge required by the users was minimised and the engineering learning strategy emphasised.

Another major incentive to the application of computers in engineering has come about with the advent of the microcomputer. Whilst these low cost systems took some time to achieve respectability within the profession their use is now well established. However development of software for the microcomputer is taking place in a random and uncoordinated manner. Whilst there is no suggestion that all microcomputer software writers should be subject to a coordinating body it is obvious that cooperative development of software has many advantages. The author's own experience in writing software, Smith (1981,1983), has made him acutely aware of the enormous time and effort required to develop a learning program from the seed of an idea to a marketable product. The cost of development can never be recovered by resale.

The paper will now attempt, in general terms, to examine the range of programs used in engineering, to classify them into broad groups, and to suggest development work necessary within both groups of programs.

CLASSIFICATION OF PROGRAMS

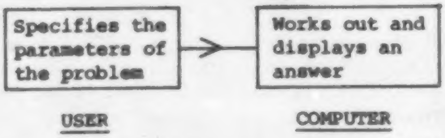
Two Groups Identified

There are many types of programs used within the learning environment of an engineering or science based faculty. In general, these types fall into two major groups and several minor groupings.

The major groups exhibit the following features:

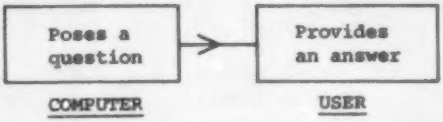
GROUP A These are primarily analysis type programs which have been written and are used to give the answer to a particular problem. The involvement of the computer and user can be represented by the following model.

Figure 1


Specifies the parameters of the problem
Works out and displays an answer
USER
COMPUTER

GROUP B These are primarily question and answer programs in which the involvement of the computer and user are:

Figure 2



Examples of Each Major Group

An example will help to illustrate the basic difference between programs of Group A and those of Group B.

One skill required of first year engineering students is an ability to accurately calculate the reactions of loaded beam systems. The major parameters involved are the length of the beam, the nature and location of the supports and the nature and location of the applied loads. The determination of the magnitude of the reactions (forces) involves certain analytical techniques and a particular strategy in the application of these techniques.

A Group A program will require the user to answer the following questions:

What is the beam length?
Where are supports located?
What are these support types?
Where are loads located?
What types are these loads?

The magnitudes of the beam reactions will then be given.

It can be seen that the questions asked of the student are items of problem data. No learning skills are required in determining or specifying these items. All the work in calculating the answer is done by the computer.

A Group B program on the other hand will provide the abovementioned information to the user and will ask the user the following questions:

Which reaction do you wish to find first?
What analytical technique will you adopt?
What solution strategy will you use?

In this manner the program will lead the user through the problem until a solution is obtained. In this approach, thought must be given before the answer is specified and learning benefit is achieved.

Evaluation of Group A and B Programs

Discussion is often generated as to whether or not a particular program is a valid application of CAL. To a large extent, such discussion has little or no merit. The important consideration is the appropriate use of a particular program for a given application. In so much as both groups of programs are used within an educational environment, both can be loosely considered to be CAL programs. However, perhaps a more rigorous examination might be justified.

When trying to determine whether or not a particular program is a CAL program, the intent of the program author will often provide the answer. Group A programs, of which there are an extremely wide range in engineering, are written to provide an answer. Predetermined analytical techniques and solution strategies are built into the program; they cannot be changed and often the methods used are unknown to the user. In this sense, these programs are possibly less relevant to learning than a pocket calculator or a slide rule where the user must direct the solution strategy. The computer is purely a tool which can be used as part of a larger learning process, for example a design exercise. In essence however, they are not CAL programs.

Group B programs on the other hand are written to probe a student's knowledge of a particular analytical technique and to improve his skills of synthesis. With these programs, the answer is secondary and the method of prime importance. These are obviously valid applications of CAL.

Appendix A gives a listing of two programs written in Applesoft BASIC for use on the Apple II microcomputer. The programs relate to the beam reactions problem and their use will illustrate the difference between programs of Group A and Group B. Although the examples are very trivial and incomplete, it is evident that the user of the Group A program experiences virtually no intellectual challenge when compared with the use of the Group B example.

The Present State of Engineering Programs

Currently the majority of programs used in undergraduate engineering courses are of Group A. This state of affairs reflects the traditional development of engineering computing: a means of providing answers to complex analytical problems. The deficiency of Group B programs tends to be a reflection of the difficulty of writing significant learning programs of this nature. These difficulties will be discussed in a later section of this paper.

ANALYSIS PROGRAMS USED IN CAL

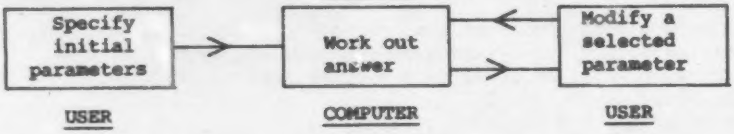
An enormous amount of time, energy and expense has been devoted to analysis (Group A) programs and it is important that the full potential of such programs be realised within the teaching and learning environment. With a few relatively minor modifications, they can become very effective learning programs in their own right.

One skill that an engineer must acquire is an ability to appreciate and to be able to predict how a structure, for example, behaves under load. To a large extent this knowledge is a product of experience and the analysis program can be helpful in providing this experience.

Let us reconsider the Group A model as shown in Figure 1. Suppose in addition to the program calculating reactions when the load is in a certain location, the student is required to consider how the reactions will change if the load is moved, say, an increment of length to the right.

The computer-student interface model now becomes:

Figure 3



The user is now in the position to be able to evaluate the effect of a given parameter on a particular answer and the learning value of the program increases enormously. The analysis program changes its role to that of a simulation package.

An example of such an approach is the program TRUSS by Townsend and Wood (1978). In this program a standard analysis routine has been combined with components which allow changes of parameters to be made and the effect on the answers observed.

The success of this approach requires that four important features must be built into the modified analysis program. These are, in order of importance:

1. Short turn around time
2. Concise display of results
3. Efficient parameter editing procedures
4. Ability to create and maintain data files

Short turn around time is essential so that the changes made to a particular parameter can be readily related to the revised answers and appropriate conclusions deduced. Efficient editing also will contribute in this respect and will considerably reduce the labour involved in making changes. Files will enable users to rerun certain aspects of a program without the need to recreate data. Clearly this upgrading of an analysis program is not effective using card input to a batch processor giving printed output. An interactive on line approach is generally essential with the output clearly displayed, possibly using graphics. However with careful planning and a clear appreciation of the learning goals, effective work can be done by non-interactive methods as shown by Brohn (1981).

Alternate approaches are possible. In one run several answers may be given at the one time. For example reactions may be given for the load at a given point and also for the load one increment of length to left and to right of that point. Alternatively the return loop shown in Figure 3 might be performed automatically and the effect on the answer displayed graphically.

In such cases the program will be changed from:

"an analysis program to give an answer"

to

"a simulation program showing how changes in
a given parameter affect an answer".

The example of the Group A program listed in Appendix A is able to be used in this extended manner.

The engineering branch of the academic profession is fortunate to have such a wealth of excellent analysis programs which have the potential to be modified to extremely effective CAL programs.

DEVELOPMENT OF GROUP B PROGRAMS

Much work has yet to be done before Group B programs have a significant impact on the teaching in engineering courses. The main problem of the Group B program is that it is not attempting to simulate an engineering problem but rather the approach of the human mind to the solution of that problem. To describe these programs as "question and answer" is a gross oversimplification of their true nature which lies somewhere within the cognative domains of application, analysis and synthesis.

By the very nature of the engineering problem these programs must permit several alternate approaches to a given problem and within each approach, several alternate methods. Accordingly, the programming requirements become very involved and the structure of the program is significantly different to that of the analysis program where only one approach and method, the most convenient, is used.

Even in the simple example of beam reactions, a large number of paths through the program must be provided. Many of these paths will of course not be followed during a given use of the program: the choice will be determined to suit the preference, personality and maybe even the mood of the user at that time. Clearly for practical reasons a limit has to be set to the number of paths a user can take. As however, the worth of a program of this nature is inversely proportional to the number of practical limitations imposed on solution paths, restrictions must be kept to a minimum. The program must not degenerate to a "do it this way" approach where the "this way" is the method preferred by the program author given his personality and background experience.

A good example of a Group B program is REACTZ by Bigelow and Lubkin (1979) which leads students through the solution of beam reactions.

If we consider the computer-student interface model for Group B programs shown in Figure 2, it is evident that the "provides an answer" users block is in fact a labyrinth of alternative paths. Some of these paths are independent of others and some must be transversed before others can be used. The user block becomes a most complex block for even the simplest engineering problem.

The difficulties involved in developing worthwhile programs of this nature are immense but it is considered that the benefits to be obtained make the task worthwhile.

PROBLEMS IN DEVELOPING ENGINEERING BASED CAL PROGRAMS

The previous two sections have alluded to some of the problems involved in developing CAL programs of either Group A or Group B. These problems can be summarised and extended as follows.

GROUP A

1. Development of "front ends" to facilitate data input and editing.
2. Development of "tail ends" to simplify, clarify and highlight certain aspects of answers so that the significance of the answers can be readily appreciated by the user. Use of graphics will feature in this consideration.

GROUP B

1. Development of strategies to accommodate multiple approach learning programs. These methods must combine storage of massive amounts of data and allow quick access to this data.
2. Consideration of many psychology of learning aspects relating to the use of interactive learning programs. Items that need to be considered are:

i) Impact of colour
ii) Timing delays built in to the program to give think time
iii) Speed of delivery of text to screen
iv) Use of graphics
v) Use of sound
vi) Provision of error and guidance information.

One problem that must be considered relates to the interchangeability of program from one computer system to another. This consideration is of course much more critical when dealing with microcomputers where direct interchange of programs can be a significant, if not impossible task.

RECOMMENDATIONS, CONCLUSIONS

The development of any computer program is an expensive task, both when measured in time and money. In order to minimise the expenditure and maximise the effectiveness of those working to develop CAL programs in the applied sciences and engineering, consideration of four separate items is suggested.

1. Co-operative development of CAL programs should be encouraged under the auspices of any suitable interest group. Nationwide organisations such as the Institution of Engineers or the Association for Computer Aided Design (ACADS) might be suitable bodies. Such co-operative development would share the work load, avoid wasteful duplication of effort, and speed implementation of CAL in universities and colleges.

2. Objectives are set in which agreement is made to tackle certain topics within a course or to give priority to the conversion of certain analysis programs to simulation type programs. Preference should of course be given to many of the problems students have with basic concepts, for example equilibrium, rather than high powered issues. Consideration might be given to the development of a course which integrates all aspects of the teaching strategy e.g. lectures, tutorials, problem sheets, laboratory work and CAL.

3. Task forces are established to examine and make recommendation on how to effectively treat two aspects previously mentioned:

   i) Program structure with particular reference to the problems associated with multipath programs.
   ii) Psychology of learning issues to recommend on how best to maximise the educational impact of the programs.

   This task force could also make recommendations regarding the most suitable programming language to be adopted for some or all of the programs with particular reference to authoring languages.

4. Set standards of documentation. It is unrealistic to expect all colleges and universities to use the same computer system, particularly in the realm of the microcomputer. Transfer of program will be a problem but it need not be an impassable barrier. Whereas a major CAL program may take hundreds of man-

hours to develop, rewriting to suit another system may only take tens of man-hours. This is provided the original program has been written around a discernable structure and is adequately explained in supporting manuals. Documentation standards are essential for these two aspects: program structure and supporting literature. The standards of documentation set by ACADS (1974) could be invaluable reference material in this respect.

In conclusion, the author believes that CAL programs, particularly of Group B, have the potential to make a valuable contribution to engineering education. There are many issues to be resolved and greater cooperation is suggested as a means of efficiently and effectively tackling the task of developing these programs.

APPENDIX A

See next page for computer listings.

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APPENDIX A

Shown below are listings of trivial examples of Group A and Group B programs. They are written in Applesoft BASIC for use on the Apple II microcomputer.

```
5  REM  GROUP 'A' PROGRAM
10  HOME
20  PRINT "REACTIONS FOR A SIMPLE BEAM"
25  PRINT "=========================="
30  VTAB 4: HTAB 3: PRINT "WHAT IS THE BE
     AM LENGTH"
35  VTAB 6: HTAB 3: PRINT "DISTANCE TO RO
     LLER SUPPORT"
40  VTAB 8: HTAB 3: PRINT "MAGNITUDE OF L
     OAD"
45  VTAB 10: HTAB 3: PRINT "DISTANCE TO L
     OAD"
50  VTAB 4: HTAB 32: INPUT " ";L
55  VTAB 6: HTAB 32: INPUT " ";D
60  VTAB 8: HTAB 32: INPUT " ";P
65  VTAB 10: HTAB 32: INPUT " ";X
70 R =  INT (100 * P * X / D) / 100
75  VTAB 12: HTAB 12: PRINT "* REACTION =
     ";: HTAB 33: PRINT R
80  VTAB 15: PRINT "****************END***
     *************"
85  VTAB 22: PRINT "PRESS ANY KEY & PROGR
     AM WILL CONTINUE   IN MODIFIED FORM.
     ";
90  INPUT " ";A$
95  VTAB 15: PRINT "
                    "

115  VTAB 12: PRINT "
                     "
120  VTAB 10: HTAB 30: PRINT "REACTIONS"
125 T = 12
130  VTAB T: HTAB 9: PRINT X;: HTAB 34: PRINT
     R


140  VTAB 22: SPEED= 150: PRINT "PRESS AN
     Y KEY TO MOVE LOCATION OF LOAD  1 UN
     IT OF LENGTH TO RIGHT";: SPEED= 255
145  FOR XX = X + 1 TO X + 5
150  VTAB 23: HTAB 27: INPUT " ";A$
155 R =  INT (100 * P * XX / D) / 100
160 T = T + 1
165  VTAB T: HTAB 9: PRINT XX;: HTAB 34: PRINT
     R
170  NEXT XX
180  PRINT : HTAB 17: PRINT "*END*"
190  END
```

Program of Group A

```
5  REM  GROUP 'B' PROGRAM
10  SPEED= 255: HOME : READ L,D,P,X
15  DATA 10,8,20,3
20  PRINT "REACTIONS FOR A SIMPLE BEAM"
25  PRINT "=========================="
30  VTAB 4: HTAB 3: PRINT "BEAM LENGTH";: HTAB 32: PRINT L
35  VTAB 6: HTAB 3: PRINT "DISTANCE TO ROLLER SUPPORT";: HTAB 32: PRINT D
40  VTAB 8: HTAB 3: PRINT "LOAD MAGNITUDE";: HTAB 32: PRINT P
45  VTAB 10: HTAB 3: PRINT "DISTANCE TO LOAD";: HTAB 32: PRINT X
90  GOSUB 235
95  SPEED= 150
100  VTAB 14: PRINT "*TO CALCULATE REACTION, DO YOU:": PRINT
105  PRINT "      TAKE SUM HORIZ FORCES?    (H)"
110  PRINT "      TAKE SUM VERT  FORCES?    (V)"
115  PRINT "      TAKE SUM OF MOMENTS?      (M)"
120  VTAB 20: INPUT "            SPECIFY H,V OR M  ";E$
125  IF E$ = "H" THEN  GOSUB 260: GOTO 160
130  IF E$ = "V" THEN  GOSUB 270: GOTO 160
135  IF E$ = "M" THEN  GOTO 150
140  VTAB 22: PRINT "CODE NOT VALID, RESPECIFY, V H OR M?"
145  GOSUB 235: GOSUB 250: GOTO 120
150  GOSUB 230: GOSUB 250
160  SPEED= 255: FOR R = 16 TO 23: FOR C = 1 TO 40: VTAB R: HTAB C: PRINT "
     ";: NEXT : NEXT : SPEED= 150
165  VTAB 14: PRINT "*SUM OF MOMENTS ABOUT LH SUPPORT"
170  VTAB 16: INPUT "    LEVER ARM OF REACTION    ";DD
175  IF DD = D THEN  GOSUB 230: GOSUB 250: GOTO 190
180  VTAB 22: PRINT "INCORRECT, LEVER ARM IS  ";D
185  GOSUB 235: GOSUB 235: GOSUB 250: VTAB 16: HTAB 29: PRINT D
190  VTAB 18: INPUT "    LEVER ARM OF LOAD        ";XX
195  IF XX = X THEN  GOSUB 230: GOSUB 250: GOTO 210
200  VTAB 22: PRINT "INCORRECT, LOAD LEVER ARM IS ";X
205  GOSUB 235: GOSUB 235: GOSUB 250: VTAB 18: HTAB 29: PRINT X
210  FOR N = 1 TO 6
215  VTAB 22: HTAB 5 * N - 4: PRINT "ETC";
220  NEXT
225  VTAB 22: HTAB 33: PRINT "*END*": END
230  VTAB 22: HTAB 30: PRINT "CORRECT"
235  FOR DE = 1 TO 1000: NEXT
240  RETURN
250  VTAB 22: FOR C = 1 TO 40: PRINT " ";: NEXT : RETURN
260  VTAB 22: PRINT "SUM HORIZ WONT FIND VERT REACTION"
265  GOTO 275
270  VTAB 22: PRINT "SUM VERT WONT FIND REACTION YET"
275  GOSUB 235
280  VTAB 23: PRINT "    YOU SHOULD TAKE MOMENTS"
285  GOSUB 235: GOSUB 235
290  RETURN
```

Program of Group B

A CASE FOR BETTER SOFTWARE IN BIOLOGICAL EDUCATION

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INTRODUCTION

Educators are falling far behind in the effective application of new technology to educational needs. On the other hand one field in which modern technology has been adopted is the entertainment and recreation industry.

On at least two recent occasions newspapers have reported that teenagers have stolen money from parents or relatives to enable them to play 'Space Invaders' or other similar games at their local amusement parlor. The extensive use of these machines situated in university cafeterias is evidence that their appeal is to more than just children and there may be some important lessons for educators to learn in this area.

It is not too simplistic to say that much of the enjoyment players receive comes from the use of various skills in the game. These include visual, tactile and hearing skills as well as the more cognitive skills of timing, distance estimation and arithmetic and mathematics.

Motivation and the Exercise of Skills

The important point is that it is necessary for the person to exercise certain skills in playing games. Apparently, because of the way the challenge of the game is presented, this exercise of skills is greatly enjoyed, sometimes to the point of addiction. The explicit exercise of similar skills in a traditional classroom or with pencil and paper would be approached with less enthusiasm. A considerable effort in education goes into encouraging students to exercise their skills and utilize the knowledge they have gained at earlier stages. In general, as one progresses through various educational levels there is a greater emphasis on the use of skills and knowledge and less on the acquisition of basic facts. Concurrently there should alro be a change from a teaching to a learning emphasis.

One of the more important obstacles in encouraging learning is one of motivation of the potential learner. Too often the prime motivation in a learning exercise is related to performance in a formal quantitative assessment of learning. The student is 'forced' to learn by the threat of an unfavourable assessment. It would seem that in many cases, the motivation to learn comes from such a threat. The motivation for acquiring knowledge is likely to have an important influence on the way students assimilate the material, their attitude to it and probably most importantly, their ability to use it coherently. These factors must be kept in mind during the development of software for use in a teaching-learning situation. Experience with interactive computer based games would suggest that even if it were necessary to coerce students to begin a stimulating simulation exercise of the type discussed below, it would not be long before there would be a marked change in their motives as they began to be challenged by it.

BIOLOGICAL SYSTEMS

In many biological disciplines there is a tendency to lead tertiary students eventually to a point where they can think about systems having earlier learnt about the lower level sub-units, interactions, reactions or relationships. Examples would include the nitrogen balances within living cells, the genetics of natural populations, the energy balances of plant leaves or nutrient cycling in a rainforest.

There are at least three major difficulties in studying such systems. The first is that at the lower level of organization which must be used to describe the system, processes and interactions are numerous and non-linear. Secondly, the response of the system to any modification to its environment or input parameters is not easily predictable both as a result of its complexity and because the response depends also upon its internal status at the time. This is in contrast to most physical systems where if the system is described, the response to a given input may be precisely predicted. In such systems, past occurrences do not influence the present response. Thirdly, experimental examination of biological systems is often difficult or impossible because of the size, expense, danger or inaccessibility of the system or because of the social problems involved (in medical fields for example).

Gaining a Feel for Systems

As the educational process proceeds (e.g. in later years of a tertiary course), the systems students are expected to consider become increasingly complex. The associated difficulties in understanding and learning about them should be eased by the knowledge base acquired earlier in a course. This presupposes the student has not only acquired and retained the knowledge but also knows how to apply it. This latter feature of learning is a somewhat difficult one in that repetitive calculations or manipulations rapidly become boring (and unpopular) and often the point of an exercise is lost as a result. In addition, it is frequently an overall qualitative appreciation of, or 'feel' for, the material which is important rather than the precise quantitative results. A biology student may not have all the basic mathematical skills required to evaluate some of the relationships involved in the system. To Space Invader addicts the quantitative results of their manipulations of the machine are not important in that they do not know angles, distances and speeds etc. (although they may know how to perform the appropriate arithmetic), but they get a feel for the system by 'playing' with it and developing strategies which (may) help them to 'win'. This result is similar to the desired outcome when a student is exposed to some biological system (real or modelled) in an educational context.

It is seldom that students approach their disciplines with as much enthusiasm as many approach computer based games. We may learn something from the situation and apply it to the field of education. Is it possible to constructively introduce some of the challenge and 'fun' of the electronic arcade games into educational software? There is no reason that learning should not be fun.

The computer - particularly the microcomputer - could become very important in our teaching institutions, certainly much more so than at present. It offers truly remarkable possibilities and effectiveness in some aspects of the teaching-learning process. It should also be stated that just as chalk, talk, video, printed notes, practical exercises and seminars etc. cannot individually be used effectively to present an entire course, neither can a computer and computer aided learning (CAL) in the type of work considered here. Each has its own use and each may be used effectively in the appropriate situation.

In many educational situations (for example ecology, environmental studies, physiology, sociology and medicine) it is desirable that students gain a feel for the system - and particularly its dynamics - rather than that they be able to necessarily sit down with a pencil and paper and accurately calculate or predict the response of all the interrelated subunits to a given external change. That is, there is some need for students to have a qualitative appreciation of the world as well as the quantitative one expected in scientific disciplines.

Feedback

A highly important feature of many electronic games is their immediate audible and visual feedback. In few areas of our educational processes is there rapid feedback when an answer, a decision or a calculation is made by the student. This is particularly true in biological areas. Students may have to wait at the best hours or days and sometimes months for a response to their efforts. The substantial educational benefits of feedback after such long periods is frequently lost because of the delay. The delay is a result of many factors, some simply avoidable but mostly a product of the educational system we follow and which are not readily changed.

Enthusiasm for video games is primarily attributable to rapid feedback. Such a relationship between people and machines, particularly the rapid feedback, could be capitalized upon in education systems. There seems no good reason why educators should not be using similar techniques. Computers are being used but there appears to be very little imagination going into the production of software for student use, particularly in the broad areas of biological systems.

SIMULATION MODELS

For a considerable time it has been fashionable for research workers to formulate models of the systems they study. Such models are based upon all available knowledge of the system and if properly designed may be used to predict other characteristics of the system or help suggest further investigations of it. Often, although not always, the modelling of a real system is in mathematical terms. For instance, the pools and rates of reactions of nitrogen compounds in plant cells may be modelled by a system of equations relating rates of reactions to concentrations of reactants and the properties of the enzymes mediating the reactions. Similarly, the genetic composition of a population of organisms may be described by the use of a system of equations relating pools of genes, frequencies of mutations, mating frequencies, mortality rates etc. Models perform most important functions in research and original discovery especially when used to simulate the possible behaviour of the modelled system in response to a range of external conditions. A variety of models has been used in many areas of teaching.

If a model were good enough (perfect) it would always and exactly simulate or emulate the real system. For some very simple systems perfect simulations may be possible, but these are rather uncommon. If such perfect models existed in biological areas, they could be ideal teaching tools. Some aircraft flight simulators and industrial plant simulators come very close to perfect models but this is because the systems modelled are simple compared to natural systems.

The ability to discover whether a system is real or a model depends upon the depth of investigation and upon the type of questions or investigations made. While a superficial examination of a system may provide evidence to suggest the system is real, closer examination may indicate that it is in fact a model. That the apparent reality of a system model may vary with the sophistication of the knowledge or questions of the investigator can be most useful in an educational context.

A Simple Biological Model

Let us take for example a model of leaf photosynthesis and a first year tertiary student of Botany. At the commencement of a course, the student may be assumed to know nothing about the subject of leaf photosynthesis. One aim of the course might be that the student should learn the qualitative response of the net photosynthesis rate of a typical leaf in air to the flux of incident light, and to leaf temperature. Students could be given a model of the leaf (for example, an analogue electrical model or a computer programmed to model the system) and instructed to experiment with it to determine the relationships of interest. With only leaf temperature and irradiance as inputs and net photosynthesis rate as the output of the model, students could readily determine the relationships. They would not be able to investigate other properties of the leaf and as far as they were concerned would have found all its properties. If put in a position to compare the model output to the behaviour of a real 'typical' leaf, the student should find the two coincided exactly with respect to those factors examined. If at a later stage in their course students were expected to use it to determine the carbon dioxide response of leaf photosynthesis, the same model would be useless because carbon dioxide was not an input to the model. The model was useful in one case, but not in the other. This does not mean the model was a bad one but just that its purpose and application were limited.

The point is that to be useful as a teaching tool, a model of a system does not have to be the most sophisticated model of the system available and in fact, the simpler the model the more useful it may be in a particular educational context.

Available Educational Software

An examination of the wide range of educational software available, particularly in the area of biological systems, leads to the conclusion that in general the quality of the CAL material with which the student is expected to interact is very poor in comparison with some of the games and business packages available. The reasons for this lack of quality and sophistication are probably primarily economic. If software has been developed from a commercial point of view and aimed at the microcomputer market, then it would have to be of wide appeal. This requires it to be of both rather general applicability and limited in hardware requirements. For example, much of the educational software presently available relies on relatively small data bases because of the high cost of mass storage (at least to the present). If it has been developed in an educational context within an educational institution it should be better software but it is unlikely to 'see the light of day' because it is so specific to a particular software, hardware or educational environment. In such cases there is little benefit in its developers modifying it for other installations. In any case, there appears to be little personal benefit for teachers in tertiary institutions to innovate in their teaching as professional advancement depends very little upon teaching performance or ability. A further problem of course relates to software piracy and it is stated in some circles that educational institutions are notorious software pirates.

The present purpose is not to criticise individual approaches or programmes but to look at some possibilities which exist in one area of computer aided learning, namely simulation of biological systems.

The computer with its software and peripherals is not a panacea. It cannot take the place of good teaching, it cannot perform miracles. It can be a most useful adjunct to good teaching.

BIOLOGICAL SYSTEMS

Before looking at an example of a biological simulation, it is necessary to examine some of the features of biological systems which tend to separate them from those in more fundamental and 'exact' sciences.

The engineer can usually build a precise simulation model of a system of interest both because the properties of the components of the system are well described and understood and also because these properties are the outcome of fundamental physical laws. In biology it is difficult to discover such 'fundamental laws', if indeed they exist at all. At molecular and lower levels of course, biological systems obey the 'laws' of molecular biology but for reasons mentioned below, these do not facilitate modelling of the more organised higher levels of biological systems. In addition, the knowledge we have of the subunits of virtually all biological systems is fragmentary at best and in the biological sciences 'fundamental laws' are replaced by 'fundamental principles'. These qualitative principles have to be interpreted in the light of other attributes of the system. In non-biological systems there are usually relatively simple well described relationships between parameters of the system and the performance or behaviour of the system. Biological systems are dynamic and much more complex than physical ones. To approach the modelling of biological systems from a physical or an engineering point of view would lead us to the conclusion that the task was impossible as a result of both our incomplete knowledge of the system and because of its complexity.

An attempt has been made (de Wit 1970) to formulate a rationale of model building in biology and it is also useful in an educational context. A most important feature to recognise in biological systems is that they tend to be stratified into levels of organisation. Each level is generally characterised by its relaxation time. There is approximately a ten-fold difference in the relaxation times between adjacent levels of organisation. A brief examination of the plant biology will demonstrate these ideas.

TABLE 1

The levels of organisation involved in plant biology with an estimate of the relaxation times for each level.

Level of Organisation	Relaxation Time (seconds)	
Metabolite concentration	10^2	1.5 minutes
Enzyme activity	10^3	.5 - 3 hours
Cell	10^4	5 - 6 hours
Tissue	10^5	1 day
Plant	10^6	4 days
Population	10^7	2 - 4 months
Community	10^9	20 years
Ecosystem	10^{11}	2000 years

Table 1 includes the major levels of organisation which may be distinguished between two extremes in the study of plants. There are seven or eight levels of organisation (and knowledge) represented in this scheme and a description of processes at one level is usually in terms of the attributes of the components at the level of organisation immediately below or possibly two below the level being described. This implies a 10 to 100 fold range in relaxation times between the lowest level of the model and the level modelled. Although it might be desirable to be able to describe ecosystem functioning eventually in the terms of molecular biology for example, a closer look would demonstrate that the span between the two levels of organisation is too great. It may be shown in fact that given the constraints of computing facilities (time and speed) and also the fragmentary nature of knowledge in biological areas, it is only feasible to bridge at most three levels of organisation in simulation models of biological systems. This then leads to a situation where the time span of the smallest step in a temporal model will be about 1% of the time span of the processes in which we are interested. In an educational system it is rather unlikely that we would expect students to be able to understand or describe the behaviour or ecosystem for example, on the basis of the molecular biology of its components; thus the limitation upon system descriptions and model building resulting from the wide span of biological systems need not be a problem but it must be recognised in developing simulation models for teaching purposes. There is also little point in following causal relationships through more than two or three levels of organisation with respect to the aspect of the system of interest whilst following another aspect of the system only to the level immediately below. The quality of the model and thus its likeness to reality depends not upon its most accurate and detailed aspects but rather upon its most innacurate or imprecise ones. Thus care must be taken that each aspect of the model is as detailed as any other. If it is desired that a much lower level of organisation be linked to some aspect of the system, then the appropriate approach is to treat that aspect in a separate model. The example used below is that of a program dealing with the competitive interaction between two species in a pasture. Such a program might be developed for final year students of ecology or agriculture and would clearly assume a student user had a reasonably clear grasp of the background to the subject material.

Simulation Of the Growth of A Pasture

The aim of the simulation will be assumed to be to encourage students to exercise their basic physiological knowledge and skills as they apply to plant growth and competition so they may determine its relevance in a real situation. The complete package would probably be divided into an introductory descriptive unit and the main simulation unit. The descriptive unit may involve written notes introducing and explaining the material or it could include a computerbased tutorial on the basic information content of the subject matter. In either case it should introduce the student to the scope of the model and describe the means of user interaction with it. Both the software and hardware are important to the simulation and if it is not the case already, students should be made aware of the physical aspects of the machine with which they may have to interact (the keyboard, visual display, light pen etc.).

The main simulation unit could consist primarily of one program which performs all calculations although it may involve the use of a 'front-end' program to gather certain data from the student and a 'tail-end' program to allow access to slow peripheral devices for printing or hard-plotting of results. The term 'user friendly' has been used to describe a desirable appearance of the computer and its software to the user. In the educational situation it is highly important that the presentation be user friendly (particularly the front-end program) because the aim is to lead the student through some series of thoughts and decisions without having to first overcome problems in mastering of the computer or its terminal.

On the basis of prior knowledge and the description of the system provided by the introductory material, the student would use the front-end program to set up some of the initial conditions of the simulated system. For example, it may be possible to set such environmental parameters as latitude, time of year, slope of the ground and soil type. For all these and other important abiotic factors there would be default values. The ideal approach would be to employ an intelligent parsing routine to interpret a description of the environment provided by the student. The key words likely to be used in the description of abiotic factors would be stored and an attempt made to match them with the student input from the keyboard. The important abiotic factors included in the model could all be accessible in this routine but only if the student chose so to do. There would not necessarily be any need to refer to them if the student did not. (This in itself would be a way of assessing whether the student appreciated the importance of the abiotic environment in the system being simulated.) The preparation of the vocabulary would be a useful cross check for the developer of the model to ensure all possible parameters were covered.

This routine could also allow the student to enter such things as the shapes of functional relationships by the use of a lightpen on a high resolution graphics terminal. Depending upon the level of student understanding, there may be a wide range of biological responses so described by the student for inclusion into the model.

In one sense students may see themselves building the model. This would be true insofar as the student-defined relationships effectively replaced those default relationships provided by the original modeller. It would be expected that the student would have access to these original relationships too if desired, so that the default starting model description could be known. After the student had set-up any aspect of the system considered important, two descriptions of the system would then be prepared. The first of these would be for immediate or later hardcopy for the student and the second for input to the main simulation program. The system description at this point could also be a portion of the exercise which the teacher used for assessment purposes.

The Simulation Routine

The purpose here is not to develop a simulation model of a biological system, but rather to describe the techniques which could possibly be used to present such a system to a student. The appearance of the simulation to the student will of course depend to a major extent on the hardware available. The visual appearance of the simulation should include a tabular summary of the present state of the progress of simulation and the present environment, a brief 'menu' of options (or commands) available to the student at any one time and also a graphical representation of the progress of the calculations. This plot may be of plant growth rate, biomass, water loss, storage reserves etc.up to the present. The actual parameter would be student selected. It may be possible to have more than one such plot on the display device at one time and the student could use the HELP facility (Table 2) to modify the display. At any time the student could gain access to the subset of the plant and environmental information allowed by the teacher. Some of the ways the student could access this information via HELP requests to the main routine are outlined in Table 2.

One of the most important aspects of the natural environment of living organisms is the unpredictability of many occurrences. For example, it is not possible to predict far in advance precisely what the rainfall will be on a particular date or just what the cloud cover will be at noon. In the simulation model then, it is important to include the provision for the random variation in the environment. Such provision would be in the form of some variability index for each of the parameters and an appropriate probability function. This would allow the possibility of chance occurrences such as browsing by herbivores. At any time students would be able to terminate or suspend the simulation, cause its present state to be stored for future reference or produce hard-copy output summarising the system performance. There would also be the option of plotting the time courses of those processes selected for later consideration and for any written report that may be required. (The word-processing capabilities of the computer would be available to students for this purpose.) At a later stage it would be possible for them to return and continue an interrupted simulation from the same point.

TABLE 2

Some of the facilities which might be offered by an effective piece of educational software in the area of biological system simulations.

A HELP facility which would allow the student to:

- "replay" the immediately preceding calculation or group of calculations.
- examine a detailed "status report" which would include rates of important processes, levels of carbohydrate reserves, number of leaf and root primordia initiated etc. as well as a complete description of the environment.
- plot various of the plant responses to date against the important environmental factors.
- increase or decrease the amount and type of information displayed on the display.

A SAVE facility which would allow the present state of the simulation to be saved in a semi-permanent file which would allow the resumption of the simulation at a later time.

A LOOK AHEAD facility which would allow the student to see the way in which the environment would vary in time.

An ANALYSE facility which on completion would statistically determine which factors have been the most influential in determining the growth or water-use etc. of the plant.

A SPEED facility which would allow the speed of the simulation to be varied. This could be simply by altering a delay in a loop within the main program. It may involve the selection of a different time interval or even of a different level of organisation as the basis of calculations.

A PENCIL facility to record text and which could be used as both a 'notebook' by the student, perhaps in part as a basis for his report on the exercise, and also as a means of leaving a message for the teacher associated with the simulation.

Some of the arcade games presently available allow a person either to play against the machine or to play against another person. The popularity of home 'video computers' testifies to the attraction of this type of game program.

One way (and possibly the most effective way) for a person to learn the significance of a particular piece of information is for him/her to use it. If their 'life depended upon' their mastery of details about the factors contributing to plant performance in a competitive pasture situation, students would probably learn these details better than they would by just reading them in a textbook.

A student or two students (or teams) could be instructed to select one each of the plants concerned. The purpose of each student could be to attempt to grow successfully their species in the community. Their given aim could be to out-compete the other species (student), to achieve maximum production of their plant or of the total community, or perhaps to achieve a stable mixture of plants in the pasture. Each student may have the same objective for their plant or the two may have different objectives. A front-end routine would again be used to set up initial conditions and in this case inform the students of their purpose in the simulation. Students would interact independently in the front-end routine - perhaps even at different terminals. (In this way it could be possible to prevent students from knowing whether they were 'competing against' other class members, the program or a real plant for which detailed experimental data had been recorded.) A simulation of this nature has many of the attributes of a game and would force students to exercise all the knowledge and skill they had in the subject area. They would be required to make important decisions (perhaps with a time limit) about the response of their plant to the changing conditions within the community. This requirement would force them to 'put themselves in the place of the plant'. Such a situation must lead the students to a deeper appreciation of the real situation which is being simulated and thus to the relative importance of the various plant characteristics and processes relevant to a competitive situation.

Student Assessment

There are often problems in relation to the assessment of student progress and achievement. In situations where the student is coerced to undertake some particular exercise, the assessment may well be of the ability of the teacher to impart knowledge as much as of anything else. Assessment of student performance in the type of simulation referred to above is made more difficult by the fact that the intention behind the use of this material may be for the student to gain a feel for the material rather than a strict quantitative appreciation of facts. To determine the degree to which the student has gained in such a qualitative endeavour may not be particularly easy. As the results of the simulation itself must be primarily quantitative, students may have to spend some considerable time analysing the results of decisions made during the simulation in order that they may comment upon both the behaviour of the model system and the outcome of their management of their own basic knowledge. A written (or oral) report based on these considerations, an examination by the teacher of the initial setup and a software-produced summary of the control exerted over the simulation by the student could form the basis of a formal student assessment.

DISCUSSION

The development of interactive programs similar to those suggested above would not require technological or programming facilities which are advanced by today's standards. What they would require is the effective application in educational institutions of the present hardware and software tools available to business and industry. Computers (particularly microcomputers) are being used in educational institutions.

Unfortunately there seems too often to be either no incentive to innovate in educational situations or insufficient facilities to do so. It is commonly stated that while preparation for traditional methods of teaching in the tertiary field may require ten hours for every hour of class contact, preparation of effective computer based teaching material takes around 100 or more hours of preparation for each hour of student exposure to it. It is probable that the type of material outlined above would require at least this amount of time to prepare.

The vast majority of presently available software packages for education consist of 'verbal' or wordbased drill and practice programs. These are commonly written in a high-level language (BASIC, FORTRAN or perhaps PASCAL) which simplifies the task. There is a price to be paid for using any particular language and this must be weighed against the benefits in a particular situation. One of the major benefits conferred by the use of one of the languages mentioned above is the relative portability of software from machine to machine. Portability is of major importance if a software product is to be put on the market. It is clearly important too if it is required that it be useful on a range of hardware configurations. In the microcomputer field where much of the recent thrust of educational software development has taken place there have been some moves toward a standardized operating system. At least with respect to BASIC, it would also appear that there is an increasing acceptance of the products of one particular manufacturer although the plethora of hardware features offered by various machines means that even this is not satisfactory. The problem is that whilst there is now an increasingly uniform and sophisticated subset of the higher level language common to the different machines, access to the plotting, colour, hardcopy and sound capabilities of the hardware is different for each machine.

There is clearly an advantage at least from the point of view of the educational user, in some standardization of hardware and software. In several places one or other of the microcomputer or minicomputer distributors has been successful in gaining acceptance of their product in a particular educational institution or system. One problem is that the product accepted in one place is likely to be different from that accepted somewhere else and hence portability problems are caused by the choices made by the educators themselves. A further problem is that the products offered by the microcomputer industry (in particular) have been developed for a far wider audience than educational institutions and so are not always ideal for the latter. In addition, the microcomputer industry exists for economic reasons and these may clash with the requirements of good educational practice. There is a need for those interested in the use of computers in education to be active in expressing their hardware and software needs to the microcomputer industry. In the long term there should be major advantages to both parties in the development of a standard 'computer for education', with the possibility for several levels of sophistication and a range of peripherals to allow flexibility in different educational environments. It would not appear that such an acceptable machine exists despite the claims by a number of manufacturers.

CONCLUSIONS

For several primarily economic reasons, the software available in biological areas of tertiary education is of relatively poor standard. It is frequently dry and mechanical in presentation and certainly does not utilise the software and hardware tools available. In contrast, some branches of the entertainment industry have seized various aspects of the recently available microprocessor-based technology and applied it to making money. They have been successful to date primarily because they have developed a product which appeals. An examination of the entertainment so produced suggests that there are lessons to be learnt in the educational area. To be really successful, an educational package needs to appeal to its target audience. If that appeal can then be used as a means of leading the student into a meaningful and enjoyable learning exercise then it has been successful. Electronic amusement machines and games referred do not utilise the most recent and inaccessible technology. The technology and software they do use however, is very much more sophisticated than that utilised in the vast majority of educational hardware/software packages. What is needed in our education systems is a recognition by educators of the potential of the tools presently freely available, a demand for better computer based educational material and a realisation by funding authorities that 'you get what you pay for'.

The highest technology available today is utilised for (and indeed developed for) military and international competitive purposes. The education of the future and particularly the next generation almost certainly holds the key to the future well being of mankind on Earth. It would seem then that the quality of present educational technology and approaches is of critical importance. Educators and those in supporting roles in educational institutions should be striving to provide high quality education at whatever level they are working and despite the all-too-common bureaucratic hindrances to efficient and enjoyable learning within present educational systems.

The high technology which has resulted from international competition can and should be used effectively in teaching-learning situations to improve mankind's chances of survival. In this regard an understanding of the biological systems which comprise the biosphere is essential. Games and entertainment are important human activities and the present development of computer based games and simulations has occurred in an age where the potential for a revolutionary improvement in our educational institutions is not only possible but essential.

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KNOWLEDGE NETWORKS THROUGH SATELLITE COMMUNICATIONS AS A BASIS FOR CONTINUING EDUCATION AT A DISTANCE

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INTRODUCTION

Continuing education may be described as a growth industry in Australian tertiary institutions and the Australian domestic satellites will greatly enhance the offering of such programs at a distance. The reasons for such growth are not the central topic of this paper; however, the recent surveys of continuing education in Australia by the Commonwealth Tertiary Education Commission (CTEC) and the CRCD through ANU should reveal some interesting trends and developments.

'Continuing education' is defined for the purpose of this paper as all non-award studies undertaken by members of the community - but with particular emphasis on tertiary level studies by professionals who have completed a course in basic training. In this regard, for example, the CTEC guidelines state that a college of advanced education may spend per year on continuing education $50,000 or one per cent of its total budget, whichever is greater.

There has also been a rapid growth in Australian students studying at a distance through external studies and this is revealed in the recent draft report by Professor Johnson (1983). However, attention is drawn to one particular statement in that report:

> "Another area for close study is the technological aids to external study, which I was asked to look into in this enquiry. I have formed the opinion that the most important technological changes are the unglamorous ones related to printing and the telephone; the next development will be the arrival of really cheap computers in homes and their use for storage and transmission of data - this stage is perhaps ten years away; while the most advanced technology using satellite transmission is likely to be for many years too expensive for widespread educational use unless special funding is provided or special rates are struck. However all this technological field also needs to be kept under constant and regular review by people knowledgable both about the technology and about its educational applications." (p. 38)

It seems not enough to say that "all this technological field also needs to be kept under constant and regular review ...". Within ten years, in Australia, as has been the case already in some overseas countries such as Canada, U.S.A., and much of Western Europe, communications technology will have almost eliminated the 'distance' in 'distance education'. It is important, therefore, that tertiary institutions prepare now for the educational use of such existing and coming technology.

The next decade will see a dramatic move in Australia from relatively expensive, experimental communications technology to relatively inexpensive, common domestic systems. The satellites will be the most important contributors to this change.

Experimental use of satellites for education is not new. It has been going on since 1966 when the ATS-1 NASA satellite was launched and educational programs such as PEACESAT and USPNET were mounted in the Pacific Basin. Although ATS-1 has deteriorated considerably - known as 'graceful degradation' - it is still being used extensively by, for example, about 20 centres in Australia for experimental purposes.

An example of how popular it was to experiment educationally was found during 1976-79 with the CTS experimental satellite, a joint project of the U.S.A. and Canada; of the 20 approved long term experiments and 146 one-time demonstrations, six experiments and 64 demonstrations using CTS were educationally oriented. However, when the experimental satellites ceased, the educational use dropped dramatically. Why? Of course, part of the answer is that the novelty had worn off and not many people were prepared to continue doing the extra work involved in producing experimental programs. The main answer, however, is that there was a lack of infrastructure to ensure continued development. That is, there was a lack of units or 'consortia' of institutions big enough to be viable producers/users (Bransford and Diebler [?1981]).

The early Australian satellite transponders due to become available in 1985 have almost all been committed to various major public services or will be auctioned off to the highest commercial bidder. Whereas 'tele-education' is often mentioned in connection with the satellites, it is clear upon further probing that the amount of access educational institutions and libraries will have to them may be very limited in the first instance. Indeed, Chick (1981) summed it up as follows:

> "DOMSAT, for all its virtues, has not been designed for the small user. It is encouraging to note that thought is being given to public service applications, but there is now little room for manoeuvre. Specifications are too precisely defined and production schedules too tight to allow for any re-thinking of the operating parameters. At this stage we should be turning our attention to plans for a second generation satellite, which will not be long delayed." (p. 37)

The formation of the SAT Users group (Satellite and Telecommunication Users Association (Australia)) is one attempt by small users to form a united lobby group and learning mechanism. However, the only real solution is for educational institutions in a particular area to form a consortium so that united they can afford to compete with larger and stronger, potential commercial users.

What are the realistic prospects, then for the field of education?

This paper is only a modest, tentative attempt to explore this enormous topic.

THE CONCEPT OF KNOWLEDGE NETWORKS AND SOME EXAMPLES

> "For illustration purposes, consider this scenario. A satellite-facilitated project providing a high degree of flexibility is established. The local library becomes the vocational educational facility, offering students the opportunity to enrol in a telecourse. The coursewear [sic] is available for use at the library whenever the student is able to come. These videotapes are supplemented with several short, live, interactive satellite video-teleconferences linking these students nationwide with course specialists who can provide instant feedback simultaneously to many students, without the need to travel to individual sites." (Bransford and Diebler [?1981])

For Australia this scenario is not long in the future - that is, if educational institutions can conceptualise this model and begin now to realise it. The underpinnings of the model are to be found in the establishment of 'knowledge networks'.

A knowledge network is really made up of three interlinking networks:

(a) A network of technology - satellites, cables and equipment to ensure easy, accessible communication by space and ground systems among shifting members of various groups and sub-groups.

(b) A network of resource services - the courseware, software, media, materials, libraries, books and databases which provide the raw materials for learning. This network must be able to link in with other regional, state, national and international systems to ensure that every learner has easy and immediate access to the information required for personal, professional, recreational, vocational, survival or any other needs.

(c) A network of people - particularly tutors, convenors, librarians at local centres who can facilitate learning by acting as the intermediaries and interpreters in the interface between learner and system. In addition to this, however, is the network of human resources, of experts in various fields who can be called upon - without travelling - to contribute through lectures, symposia, interviews, etc., by use of communications technology.

A number of knowledge networks already exists either in rudimentary or fully developed form both within Australia and overseas. Here are a few examples:

1. Secondary Transition Education

The Queensland Education Department has established a project for the 'Trialling of Extension Campus for Queensland State Secondary Departments'. The purpose is 'to meet the needs of those post-year 10 students who are disadvantaged because of the unavailability or limited availability of further education and/or vocational options'. The network involves loudspeaker telephones at the Cunnamulla and Hughenden Secondary Department Schools and linked to Head Office and the Secondary Correspondence School in Brisbane. Regular lessons are taught through this system.

2. University of Queensland

The Department of External Studies at the University of Queensland has established 16 'University Centres' throughout the State. These are equipped with loudspeaker telephones, libraries and seminar rooms and staffed, in some cases, with librarians. Also, other tertiary institutions are contributing to the operation of these centres. The network is extended to Education/Teacher Centres, TAFE Colleges and other facilities where a formally established University Centre does not exist.

3. TeleSLAQ

In 1983 a project sponsored by QINSEC and offered jointly by the Brisbane College of Advanced Education and the School Library Association of Queensland led to the establishment of a state-wide knowledge network for teacher-librarians. This is a continuing education course, 'Teacher-Librarian Update 1983' (TeleSLAQ) involving a series of four interactive teleconferences with 15 Queensland centres to assist teacher-librarians to keep up-to-date on recent developments in education and school librarianship.

4. PSSC

The Public Service Satellite Consortium (PSSC), centred in Washington D.C., provides information on all public service satellites and related equipment, conducts surveys of use and needs, conducts workshops on video-teleconferencing, publishes materials on the topic, and facilitates/co-ordinates public service groups to produce programs. Bransford and Diebler [?1981] reported:

> "During its seven years of existence, the Public Service Satellite Consortium has taken pride in helping public service groups apply advanced telecommunications, specifically satellite communications, to their communications needs. Our National Satellite Network (NSN) arm has provided satellite teleconferencing assistance resulting in the coordination of over 200 events, many repeat users. As a membership organization, with over 100 member groups, PSSC can attest to the need for aggregation, cooperation, and shared resources in the application of satellite technology. Not everyone has the means to build a dedicated satellite network or even to sponsor a teleconference alone, but aggregated with others, such dreams can become a reality."

5. British Columbia Link of Institutions for Video Education (B.C.L.I.V.E.)

As a result of a CANTEL (Canada's TELECOM) feasibility study, a 'Committee to Advise on the Implementation of Interactive Television Network Linking Universities, Colleges, Provincial Institutes and other Institutes in Southwest British Columbia' was established to report on the design and implementations of B.C.L.I.V.E. The aim of the project is stated as follows:

> "In a large province with a dispersed population, a major problem facing the British Columbia Ministry of Education is the provision of equal educational opportunities to all citizens. An interactive educational television service may be a partial solution to this problem." (Draft Report of the Committee ..., 1979, p.4)

The concept and design of B.C.L.I.V.E. is based to some extent on the system centred at the University of Texas in Dallas and known as the TAGER system (Texas Association for Graduate Education and Research) initiated in 1965.

The proposed B.C.L.I.V.E. system cost about $4.25 million and involves:

> "... a video educational network serving the universities, provincial institutes and hospitals of the Lower Mainland and Southern Vancouver Island. CANTEL prepared a budgetary estimate for an 8 channel system with origination sites at the University of British Columbia, Simon Fraser University, the University of Victoria, Vancouver Community College, Vancouver General Hospital, Shaughnessy Hospital, British Columbia Institute of Technology and one mobile unit. In addition, reception sites were proposed at Douglas College, Capilano College, Pacific Vocational Institute, St. Paul's Hospital, Jericho Hill School, Fraser Valley College, Camosum College and Malaspina College. All channels from the originating sites were to be simultaneous and each was to have audio feedback." (Draft Report of the Committee ..., 1979, pp. 4-5)

The programming potential in British Columbia is discussed in the report in terms of:

(i) sharing of courses, programs and specialists unique to one institution;

(ii) an inter-institutional health-care subsystem in Vancouver;

(iii) linking of the Law Schools at University of Victoria and University of British Columbia and the Criminology Department of Simon Fraser University with the Courts in each of the respective cities;

(iv) professional development;

(v) sharing of guest speakers and research seminars;

(vi) team teaching possibilities;

(vii) conferencing;

(viii) 'field' demonstrations.

6. K.N.O.W.

Previously known as the 'Educational Telecommunications Authority', the Knowledge Network of the West (KNOW) Communications Authority was established in May 1980, under the 'Societies Act' of the British Columbia, Canada, government and is directed by a Board of Directors.

Communities in the greater Vancouver region are served by microwave and cable (B.C.L.I.V.E.), while the rest of British Columbia and Alberta are served by satellite and cable. In December 1980, there was a network of 28 receiving centre 'studio classrooms' where students could go to participate in the programs, and of these, 10 communities had cablevision to the homes. All programs are sponsored by seven educational institutions (universities, colleges and institutes), six government agencies and four continuing education organizations (B.C. Recreation Association, Continuing Legal Education Society of B.C., Outdoor Recreation Council, Society of Engineering Technologies of B.C.).

Programming arrangements include:

- interactive, live programming (14 time periods which may be booked over a five month period)
- video-taped programming
- series of general interest linked programs
- telecourses - including texts, study guides and tutorial support - either for credit or as continuing education.

IMPLICATIONS FOR CONTINUING EDUCATION

Many of the implications of knowledge networks will be common to all aspects and forms of education, but there are particular ones which have greater significance for continuing education.

1. Flexibility

Continuing education systems and programs must be flexible in form and content to ensure that these programs are available and adaptable to community needs. Locations, schedules, resource service systems, all need to be subject to open policies.

2. Interdisciplinary Studies

Various moves within society are requiring people from previously unrelated professions to work together. Communications technology involving automated systems is precipitating this move and, in turn, demands for interdisciplinary studies are increasing.

3. Sharing Resources

Whereas in the past the sharing of resources may have been limited to reciprocal borrowing rights between libraries for students from different institutions, the need for sharing now reaches to such things as Study Centres, facilities, equipment and expertise in human resources.

4. 'New' Resources

The nature of educational resources will move from mainly print to more electronic productions and live performances. Computer-based programs allow for the interaction required in much of the learning process, and coupled with such technology as the videodisc, this leads to quite exciting possibilities.

5. New Skills for Educators

Educational performers who up until now have had reasonable success in lecturing and other temporal forms of presentation, will now find that they require two new sets of skills: (a) polished performance skills, and (b) educational materials design and production skills as well as improved and different methods or strategies to accompany these materials.

6. Information and Resource Service Systems and Clearinghouses

Students of all kinds will still require print and non-print materials to support their learning programs - and these materials must be easily located and easily obtained. The availability of databases throughout Australia and overseas is one thing; availability of the actual documents is another.

The interactive home reference services through satellite videotext will need to provide such services as:

(a) complete and up-to-date program details for all TAFE and tertiary courses - including continuing education;

(b) administrative systems to enable home enrolment in such courses;

(c) access to data bases;

(d) access to millions of pages of actual material.

The alternative to (d), and this may have to be an interim measure, is for librarians to start now to create an enormous and efficient network for document delivery, even to the most remote part of the country.

7. Student Autonomy and Resourcefulness

Students will need to learn how to learn and how to work the system. This will, again, become part of the responsibility of continuing education programs. Self help groups of students in rural areas will be formed, and these will need to be catered for and encouraged. However, the range of students' starting points will be greater than at present.

8. Equality of Educational Opportunity

Communications technology will help to overcome distance and isolation resulting from geography, health, handicap, family commitment, personality or choice. Educational institutions will have to shed any remnants of elitism, and control structures (e.g. for entry requirements) will have to give way to responses more sensitive to individual needs and initiatives. Terrain-insensitive communications will enable education programs of all kinds to penetrate isolated areas most in need.

Admissions interviews and pre-tests may well be conducted via satellite as part of the selection process.

9. Research and Development

Exploring and supporting educational applications of technology must become a major thrust within tertiary institutions if they hope to survive. With an increasing number of people wishing to study externally, at home, and with an emphasis on rationalisation of educational resources, there is likely to develop some competition for student enrolments, particularly in the area of continuing education, where quotas do not apply.

Furthermore, educators will need to learn to speak the language of technology and technologists, who in turn, will need to understand education's needs and requirements.

A FINAL IMPLICATION

If Australia's domestic satellite went up today, the communications channels would be mostly silent. There are two reasons for this: firstly, there is insufficient software, especially with Australian content, to broadcast over these channels; and, secondly, there is no real preparation or expertise in most institutions to make effective use of the new facilities. What is required now is for institutions to band together in consortia to address both of these deficiencies.

This paper has attempted to provide a concept of 'knowledge networks' which will facilitate the offering of continuing and other forms of education. Examples of such networks have also been presented.

The message is clear that it is only through the formation of a formal group - a consortium - that small institutions will be able to ensure participation in the use of existing and future technology.

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